

**INITIAL STATEMENT OF REASONS**  
**Disposition Options for Universal Waste**  
**Cathode Ray Tubes (CRTs) and CRT Glass**

**Department of Toxic Substances Control Reference Number R-2011-03**  
**Office of Administrative Law Notice File Number: Z-2018-0625-01**

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## **GENERAL STATEMENT OF REASONS OVERVIEW AND STATUTORY PROVISIONS**

### **General Discussion**

#### ***Policy Statement Overview***

This rulemaking is necessary to ensure the safe and effective management of waste CRTs and CRT glass. The Electronic Waste Recycling Act of 2003 (EWRA)<sup>1</sup> was established to eliminate electronic waste stockpiles and legacy devices, including waste CRT devices (i.e., electronic devices containing CRTs) and CRTs, by providing a comprehensive and innovative system for their reuse, recycling, and proper and legal disposal. Pursuant to the EWRA, DTSC designated CRT devices such as televisions and computer monitors as “covered electronic devices.” The waste CRT devices and CRTs were managed under already established alternative management standards known as universal waste management standards. Changes in the electronics market have substantially reduced the demand for recycled CRT glass. As a result, the alternative management standards no longer achieve the objectives of the EWRA, and the current handling of waste CRTs and CRT glass presents a threat to public health and the environment. DTSC is therefore proposing regulatory changes to ensure safe and effective management of this waste.

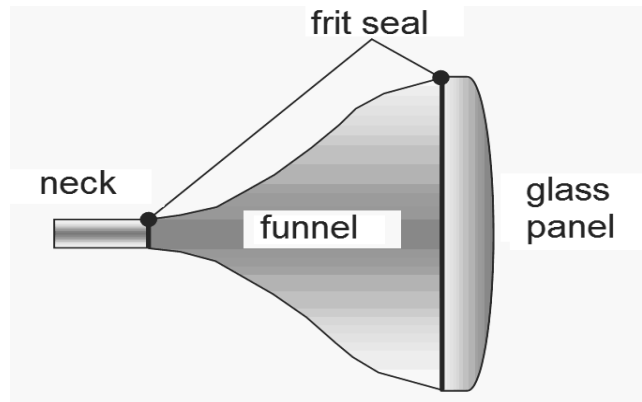
#### **Definitions: CRT Device and CRT**

A CRT device means any electronic device that contains one or more CRTs including, but not limited to, computer monitors, televisions, cash registers, and oscilloscopes. A CRT means a vacuum tube or picture tube used to convert an electrical signal into a visual image. A CRT is composed of three types of glass components: CRT panel glass, CRT funnel glass, and the frit glass which binds the panel and funnel glasses together. The neck is an extension of the funnel glass that covers the electron gun which creates the visual image.

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<sup>1</sup> Senate Bill 20 (Sher) Statutes of 2003, Chapter 526

### Diagram of a CRT



### **Background**

**Legislation:** Prior to 2003, electronic waste (including CRT devices) was subject to management as hazardous waste based on the levels constituents such as lead, mercury, and cadmium, among others, present in the waste. At that time, accelerated innovation in the electronics and computer technology sector resulted in rapid obsolescence and turnover of electronic devices. The EWRA was established in 2003 to reduce the hazards posed by growing stockpiles of electronic waste and authorized DTSC to establish alternative management standards for this waste.<sup>2</sup> The EWRA also authorized the California Integrated Waste Management Board (now known as the Department of Resources Recycling and Recovery, or CalRecycle, henceforth referred to as CalRecycle) to establish fees and a cost reimbursement system to incentivize collection and recycling of electronic waste<sup>3</sup>, and limits the CalRecycle payment authority to reimbursement of collectors and recyclers who handle covered electronic wastes in compliance with all applicable laws and regulations.<sup>4</sup>

**Initial Implementation by Regulation:** In early 2004, CalRecycle and DTSC each adopted emergency regulations pursuant to Public Resources Code section 42475.2 to implement, interpret, and make specific the EWRA. CalRecycle's emergency regulations<sup>5</sup> established a program that provides cost-reimbursement to recyclers of discarded CRT devices and CRTs who render CRTs unusable for their intended purpose by "cancelling" the waste CRT (i.e., releasing the vacuum inside the tube or crushing or shredding the CRT devices or CRTs pursuant to the treatment standards and other management requirements specified by DTSC in its emergency regulations).

<sup>2</sup> Health and Safety Code section 25214.9

<sup>3</sup> Public Resources Code section 42476

<sup>4</sup> Public Resources Code section 42476, subdivision (f)(2)

<sup>5</sup> filed May 10, 2004, Register 2004, Number: 20

The cost-reimbursement program provides a financial incentive to appropriately manage and recycle CRT devices by recyclers.

DTSC's emergency regulations<sup>6</sup> identified CRT devices and CRTs as "covered electronic devices" eligible for CalRecycle's cost-reimbursement program. The emergency regulations also listed CRT devices and CRTs as "universal waste" and established alternative management standards for that waste.<sup>7</sup> These alternative management standards may be applied in lieu of management of CRTs and CRT glass as fully regulated hazardous wastes pursuant to chapter 6.5 of division 20 of the Health and Safety Code (commencing with sec. 25100), provided CRT glass generated by the universal waste handler who treats CRT devices or CRTs (i.e., CRT recycler) is ultimately sent for recycling to a CRT glass manufacturer or a primary or secondary lead smelter. The purpose of these alternative management standards is to promote participation by CRT recyclers in CalRecycle's EWRA recycling program while maintaining an appropriate level of oversight of their hazardous waste recycling activities. Maximizing participation in the EWRA reimbursement program is necessary to realize its full potential benefit to human health and the environment. DTSC's alternative management standards for covered electronic waste achieved this goal for several years based on payment claims submitted to CalRecycle and inspections of universal waste handlers conducted by DTSC.

*Technology and Market Changes:* The advancement of new types of video display technologies (e.g., flat screen televisions and computer monitors) began to displace CRTs in 2006. Demand for the manufacturing of new CRTs decreased, which reduced recycling opportunities for waste CRTs as this was the primary way in which waste CRTs were recycled. Lead smelters continued to accept some CRT glass, but still did not show signs of having the capacity to significantly promote the recycling of all the remaining CRT glass. Additionally, due to the decreasing CRT manufacturing market, DTSC was concerned that much of the CRT glass that was exported was not recycled as prescribed by DTSC's universal waste regulations because only one CRT manufacturer, located in India, was operating.<sup>8</sup>

By 2011, DTSC observed trends during inspections of CRT recyclers, which were reflected in data from annual reports provided to DTSC by CRT recyclers regarding types and quantities of universal waste collected, treated, and shipped to destinations. These trends included: (1) the inability of CRT recyclers to provide documentation that

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<sup>6</sup> OAL Reference Number: 04-0526-01E

<sup>7</sup> Consolidated Universal Waste Regulations and Authorized Treatment of Electronic Hazardous Wastes to OAL (OAL Reference Number: Z-2008-0616-03). This rulemaking, which was approved and became effective on February 4, 2009, finalized the emergency regulations adopted in 2004 that authorized alternative management standards for universal wastes, including CRT devices, CRTs, and CRT glass

<sup>8</sup> "Looking Through Glass CRT GLASS RECYCLING IN INDIA" *Study by Toxics Link Research Team*  
Priti Mahesh, Ankita Jena and Vinod Sharma.

their CRT glass was actually being sent to a CRT glass manufacturer to be recycled; (2) CRT recyclers exceeding the one-year accumulation time limits in DTSC's regulations; and (3) CRT recyclers shipping their CRT glass with no control over the end disposition.<sup>9</sup>

Consequently, millions of pounds of hazardous waste CRTs and CRT glass either remained stockpiled at locations across California or were shipped out of state, potentially for unauthorized use or disposal. For example, in May 2013, Dow Management abandoned millions of pounds of CRTs in warehouses in Yuma, Arizona, and DTSC invested considerable time and resources enforcing the proper disposition of the waste shipped to the facilities by California recyclers, as indicated by claims submitted to CalRecycle's cost-reimbursement program. A total of 3,690,298 pounds of CRTs were removed and rerouted to appropriate management facilities.

*Regulatory Response to Changes:* DTSC determined the universal waste regulations no longer provided effective management options and incentives, leading to improper CRT and CRT glass management in California, other states, and potentially overseas. To prevent threat to public health and the environment, DTSC filed emergency regulations entitled "Disposition Options for Universal Waste Cathode Ray Tubes (CRTs) and CRT Glass" with the Secretary of State on October 15, 2012, with an expiration date of October 15, 2014.<sup>10</sup> These regulations included specific provisions to encourage the proper management of CRTs and CRT glass: (1) the express regulatory requirement that the ultimate disposition of the CRTs generated from allowable treatment<sup>11</sup> be recycled at a CRT glass manufacturer or at a primary or secondary lead smelter<sup>12</sup>; and (2) strong, clearly stated, and enforceable regulatory requirements for documenting the proper disposition of CRTs and CRT glass treated pursuant to article 7 of chapter 23.

DTSC subsequently requested, and OAL approved and filed with the Secretary of State, two re-adoptions of the emergency regulations in 2014 and 2016.<sup>13</sup> During this period, DTSC explored and evaluated the effectiveness of disposition options for CRTs and CRT glass as provided by the emergency regulations that would remain in effect for up to six years.

CalRecycle adopted emergency regulations<sup>14</sup> in August 2015 to eliminate the required demonstration that the ultimate disposition of CRTs and CRT glass is not disposal to land, water, or air. Instead, the approved recyclers must simply be compliant with

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<sup>9</sup> "CA CRT Glass Issue – The Facts" Internal DTSC Issue Statement 2012.

<sup>10</sup> Office of Administrative Law Notice File Number: 2012-1003-01E

<sup>11</sup> California Code of Regulations, title 22, division 4.5, chapter 23, 66273.72(b) & (c)

<sup>12</sup> California Code of Regulations, title 22, division 4.5, chapter 23

<sup>13</sup> Office of Administrative Law Notice File Numbers: 2014-0905-03 EE and 2016-0902-04 EE

<sup>14</sup> OAL Reference Number: 2015-0812-01E

applicable law and the recycler's conditions of authorization. These emergency regulations allowed payment for claims involving the disposal of CRTs and CRT glass. CRT recyclers did not pursue either of the disposal options provided by the DTSC emergency regulations until CalRecycle adopted their emergency regulations. CRT recyclers did not dispose of CRT panel glass in a nonhazardous waste landfill (as a nonhazardous waste), nor did they dispose CRTs and CRT glass at a permitted hazardous waste disposal facility (as fully regulated hazardous waste) until they were assured that it was an allowable option for which they would be paid under the EWRA. Following the implementation of the CalRecycle emergency regulations, CRT recyclers disposed of approximately 5 million pounds of CRT panel glass at nonhazardous waste landfills and approximately 22.8 million pounds of CRTs and CRT glass at permitted hazardous waste disposal facilities, as shown in claims submitted to CalRecycle from November 1, 2015 through November 1, 2016.

#### Efficacy of Emergency Regulations Provisions

Since their initial adoption in 2012, the existing emergency regulations have expanded the disposition options for CRTs and CRT glass derived from the authorized treatment of CRT devices in California. The regulations limited opportunities for the improper management of CRTs and CRT glass by adding additional regulatory requirements for CRT recyclers that choose to send their CRTs out of state for further processing. The regulations also established specific documentation requirements to ensure CRT glass is being sent to and received by a CRT glass manufacturer or lead smelter. However, not all the provisions have not been successfully implemented by universal waste handlers and recyclers of CRTs and CRT glass. Due to the questionable efficacy, certain emergency provisions will not be carried forward in the finalization of the emergency regulations, as explained below.

The primary objective of the emergency regulations was to promote innovation for new recycling outlets for CRTs and CRT glass for universal waste handlers operating under Standards for Universal Waste Management.<sup>15</sup> The emergency regulations allowed handlers to find alternative recycling methods by using a recycling exclusion, in Health and Safety Code section 25143.2, also known as the Excluded Recyclable Material (ERM) provision. In addition to the ERM provision, the emergency regulations also included article 9, "Recycling Concurrence Process for CRTs and CRT Glass," detailing the optional application for an ERM concurrence process by DTSC. DTSC had hoped this pathway would generate data regarding other types of recycling that could ultimately be used to incorporate another specific type of authorized recycling into regulations<sup>16</sup> (i.e., a viable method that would be able to absorb the remaining CRTs

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<sup>15</sup> California Code of Regulations, title 22, division 4.5, chapter 23.

<sup>16</sup> California Code of Regulations, title 22, division 4.5, chapter 23.



and CRT glass in California). However, applicants could not demonstrate that the requirements under Health and Safety Code sections 25143.2(b) and 25143.2(d) were met.

Currently, DTSC is unaware of any CRT recyclers that have successfully used the ERM provision added by the emergency regulation (i.e., universal waste handlers continue to send their CRTs and CRT glass for recycling through CRT glass manufacturing or lead smelting). While some recyclers have evaluated recycling options other than CRT glass manufacturing or primary or secondary lead smelting that would allow them to manage their CRTs or CRT glass as ERM, DTSC does not know of any that have implemented such options. CRT recyclers cannot meet two conditions for managing the material as ERM: (1) the recyclers cannot determine what benefit the CRT glass would provide for such uses; and (2) they do not have any data regarding the end product; the one concurrence process that was started by DTSC was rescinded by the applicant before its completion. As a result, DTSC does not seek to include the ERM provision or its associated concurrence process in the proposed finalization of emergency regulations.

DTSC also does not seek to include the article 10, "Trade Secret Protection" provision in the proposed finalization of emergency regulations. This provision added requirements to chapter 23 for seeking to invoke trade secret protection for information submitted to DTSC pursuant to the proposed regulations. It also described the administrative process that DTSC would follow to evaluate the request for such protection. Because the ERM concurrence process (with potentially large submissions of information to DTSC) is no longer included in the proposed regulation, DTSC decided that the article 10 process under chapter 23 is not needed.

### Proposed Regulations

This rulemaking proposes to authorize the continued availability of the expanded disposition options found to be effective during the period of the emergency regulations and modified management standards that have been used by universal waste handlers since 2012. The proposed regulation will allow universal waste handlers to accept CRT devices and CRTs under the authority of chapter 23 (Standards for the Management of Universal Waste)<sup>17</sup> for the purposes of disposal, in addition to the disposition options currently allowed. This will allow universal waste handlers to accept CRT devices and CRTs for the purposes of disposal without obtaining a permit to accept, treat, or store hazardous waste.

A universal waste handler who disposes of the CRTs and CRT glass becomes a hazardous waste generator and must comply with all of the hazardous waste management requirements outlined in chapters 12 through 16, 18, 20, and 22.<sup>18</sup> These

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<sup>17</sup> California Code of Regulations, title 22, division 4.5

<sup>18</sup> Ibid.

include provisions such as notifying DTSC, obtaining an EPA ID number, transporting on a manifest using a registered hazardous waste transporter, and disposing at a permitted hazardous waste disposal facility.<sup>19</sup>

A universal waste handler who treats the CRTs by separating the CRT panel glass from the CRT funnel glass (lead portion) has two options for management:

1. Dispose of the CRT panel glass at a "CRT Panel Glass Approved Landfill".<sup>20</sup> The universal waste handler is responsible for making the determination that the panel glass is not a federal (Resource Conservation and Recovery Act – RCRA) hazardous waste, does not exhibit a characteristic of toxicity by exceeding Soluble Threshold Limit Concentration (STLC)<sup>21</sup> thresholds, exhibits a characteristic of hazardous waste for toxicity only by exceeding Total Threshold Limit Concentration (TTLC)<sup>22</sup> thresholds, does not exceed TTLC for of 30,000 mg/kg for lead (3%), and meets land disposal restriction treatment standards.
2. If testing of the CRT panel glass shows that it exceeds the TTLC for barium *only*, then it is no longer a waste. CRT panel glass that meets the criteria and is recycled may be used for specific end uses outlined in HSC 25143.2.5(d).

Universal waste handlers who separate CRT panel glass must ensure that there is no comingling of CRT funnel glass and CRT panel glass to avoid cross contamination of hazardous constituents.

CRTs and CRT glass may still be recycled via CRT glass manufacturing or primary or secondary lead smelting. Universal waste handlers that transport CRTs and CRT glass to another facility must keep records with specific information and contractual arrangements between the two facilities to ensure that the CRTs and CRT glass reach their intended destination. The proposed regulations require universal waste handlers who do not further process CRTs into CRT glass to ensure and document that the CRTs are legitimately recycled, disposed, or shipped to another authorized universal waste handler for further treatment.

The proposed regulations allow CRT recyclers to send their CRTs to an out-of-state recycler (e.g., an intermediate facility, as defined in the proposed regulations) provided

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<sup>19</sup> The term *permitted hazardous waste disposal facility* replaces *Class I landfill* which was the term used in the 2012 emergency regulations and subsequent re-adoptions of the emergency regulations in 2014 and 2016.

<sup>20</sup> The term *CRT panel glass approved landfill* replaces *Class II* and *Class III landfill* terms which were used in the 2012 emergency regulations and subsequent re-adoptions of the emergency regulations in 2014 and 2016.

<sup>21</sup> Toxic as defined through application of laboratory test procedures called the "Waste Extraction Test" (commonly called the "WET"). The results of the WET tests are compared to their respective regulatory limits, the Soluble Threshold Limit Concentrations (STLCs), which appear in California Code of Regulations, title 22, subsection 66261.24(a)(2).

<sup>22</sup> Toxic as defined through application of laboratory test procedures called the "total digestion" test methods. The results of each of these laboratory tests are compared to their respective regulatory limits, the TTLCs, which appear in California Code of Regulations, title 22, subsection 66261.24(a)(2).



they ensure all of the CRT glass generated is subsequently recycled by a CRT glass manufacturer or lead smelter. These CRT recyclers must also document and maintain onsite specific information regarding transporters, intermediate facilities, contracts with the intermediate facilities, the CRT glass manufacturer or lead smelters, the dates and quantities of shipments, and confirmation receipts from the CRT glass manufacturer or lead smelters. The contractual arrangement between the California CRT recycler and the out-of-state CRT recycler, as proposed in these regulations, is meant to maintain the necessary oversight to ensure the CRTs from the California recycler are recycled as required by the proposed regulations and make it clear that the California CRT recycler is responsible for any improper disposition of the generated CRT glass.

In addition to the requirements above, the proposed regulations require notifications and documentation pertaining to the disposal of CRTs and CRT glass in a permitted hazardous waste disposal facility and also require the disposal of CRT panel glass meeting specified conditions in a CRT panel glass approved landfill in California. Also, please note the term "CRT panel glass approved landfill" replaces "Class II" and "Class III landfill" terms in the proposed regulations and "permitted hazardous waste disposal facility" replaces the term of "Class I landfill".

DTSC has also determined it is appropriate to allow for the disposal of CRT panel glass in nonhazardous waste landfills. Unlike CRT funnel glass, CRT panel glass does not contain leachable levels of regulated hazardous constituents, including, lead. Thus, the disposal of CRT panel glass in nonhazardous waste landfills remains protective of human health and the environment because it will not result in the release of hazardous constituents into drinking or surface water. Since the environmental harm is minimized and the nonhazardous waste landfills remain regulated by other agencies (e.g., these nonhazardous waste landfills still require authorization from the Regional Water Quality Control Board to accept such waste), DTSC has determined this is an appropriate disposition option, particularly because viable recycling options for such glass have not materialized.

However, prior to disposing of CRT panel glass, it must be separated from CRT funnel glass. As stated above, CRT funnel glass does contain leachable levels of hazardous constituents. Such glass cannot be disposed of in a nonhazardous waste landfill. Thus, DTSC proposes testing requirements on the CRT panel glass destined for disposal to ensure that CRT recyclers appropriately separate CRT funnel from CRT panel glass so that CRT funnel glass is not inadvertently or intentionally disposed of in nonhazardous waste landfills with CRT panel glass.

As such, and based on DTSC's proposed testing requirements, separated CRT panel glass that does not exhibit the characteristic of toxicity by exceeding soluble regulatory threshold levels is presumed not to contain CRT funnel glass because that is its

inherent, unique characteristic (i.e., CRT panel glass is only hazardous for total concentrations, not soluble concentrations). Such panel glass is excluded from hazardous waste regulations and may be disposed of in a nonhazardous waste landfill. Conversely, CRT panel glass that exceeds soluble regulatory threshold levels is presumed to contain CRT funnel glass thus it would not qualify for the exclusion. Such glass cannot be disposed of in a nonhazardous waste landfill (i.e., the glass is considered hazardous waste and remains subject to California hazardous waste regulations).

DTSC decided that three other provisions of the 2012 emergency regulations would not be included in the final proposed rulemaking. Recycling by means other than CRT glass manufacturing and lead smelting using the ERM exclusion in Health and Safety Code section 25143.2 was one main disposition option rejected for final rulemaking. The other was the discretionary DTSC concurrence process (article 9 of the emergency regulations) provided to assist CRT recyclers with ERM exclusion provision above. Lastly, the trade secrecy provision (article 10) related to submissions to DTSC pursuant to a DTSC concurrence for the ERM exclusion provision, is not included in this final rulemaking.

The proposed regulations also add an exclusion<sup>23</sup> to acknowledge that CRT panel glass which is managed in accordance with Health and Safety Code section 25143.2.5 is excluded from California's hazardous waste regulations. Assembly Bill (AB) 1419 (Eggman, Chapter 445, Stats. 2016) amended Chapter 6.5 of the Health and Safety Code by adding section 25143.2.5 to allow for the recycling of hazardous waste CRT panel glass, by exempting the material from DTSC's hazardous waste regulations if certain conditions are met and it exceeds the TTLC for barium *only*.

DTSC believes that the proposed regulations should include the option to properly dispose of CRTs and CRT glass because no additional viable recycling options have been found for CRT glass during the nearly six years under the DTSC emergency regulations (from 2012 to present). The disposal option provides a safe and effective alternative disposition option for CRT recyclers who could not pursue existing options that were no longer as readily available (e.g., CRT glass manufacturing) or find other new and viable recycling options. The disposal option, and corresponding management standards added by the proposed regulations, provide for a safe and effective disposition of CRTs and CRT glass and decreases the likelihood that discarded CRTs and CRT glass will be improperly managed.

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<sup>23</sup> California Code of Regulations, title 22, division 4.5, chapter 11, section 66261.4

## **Article 8, General Discussion**

Based on manufacturing claims, CRT panel glass contains a high percentage of barium oxide while CRT funnel glass and frit contain a high percentage of lead oxide. Barium and lead oxides are regulated hazardous waste constituents that may cause wastes to exhibit a characteristic of a hazardous waste for toxicity in California. Tests reviewed by DTSC confirmed that CRT panel glass, CRT funnel glass, and frit meet the definition of hazardous waste for exceeding criteria for metals. However, it was determined that CRT panel glass differed from CRT funnel glass and frit regarding its composition. Whereas CRT funnel glass and frit exhibit a characteristic of toxicity due to extractable levels of lead, which exceed the regulatory soluble threshold limit using the Toxicity Characteristic Leaching Procedure (TCLP)<sup>24</sup> and the Waste Extraction Test (WET)<sup>25</sup> method, CRT panel glass does not exceed the regulatory criteria when analyzed for any hazardous constituents, including barium or lead, when using the same extraction tests. Conversely, CRT panel glass exhibits a characteristic of toxicity due to its total level of barium, and is therefore hazardous waste solely because it exceeds the Total Threshold Limit Concentration (TTLC).<sup>26</sup>

Based on these analyses, DTSC determined California's Hazardous Waste Control Laws (HWCLs), specifically Health and Safety Code section 25141.5, subdivision (b)(3)(A), exclude CRT panel glass from classification as a hazardous waste for the purposes of disposal in a permitted class I<sup>27</sup>, class II<sup>28</sup>, or class III<sup>29</sup> disposal unit and if prior to disposal, the waste is managed in accordance with the management standards adopted by DTSC. Article 8 in this proposed regulation provides such management standards by establishing additional procedural and waste classification testing requirements to ensure that waste subject to the Resource Conservation Recovery Act (RCRA) (i.e., CRT funnel and frit glass) is not disposed of in CRT panel glass approved landfills. These management standards and requirements will ensure that only CRT

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<sup>24</sup> Toxic as defined through application of a laboratory test procedure called the Toxicity Characteristic Leaching Procedure (TCLP - U.S. EPA Test Method 1311). The TCLP identifies wastes (as hazardous) that may leach hazardous concentrations of toxic substances into the environment. The result of the TCLP test is compared to the Regulatory Level (RL) in the table in California Code of Regulations, title 22, subsection 66261.24(a)(1) of the hazardous waste regulations.

<sup>25</sup> Toxic as defined through application of laboratory test procedures called the "Waste Extraction Test" (commonly called the "WET"). The results of the WET tests are compared to their respective regulatory limits, the Soluble Threshold Limit Concentrations (STLCs), which appear in California Code of Regulations, title 22, subsection 66261.24(a)(2).

<sup>26</sup> Toxic as defined through application of laboratory test procedures called the "total digestion" test methods. The results of each of these laboratory tests are compared to their respective regulatory limits, the TTLCs, which appear in California Code of Regulations, title 22, subsection 66261.24(a)(2).

<sup>27</sup> Class I: Waste Management Units for Hazardous Waste, California Code of Regulations, title 23, section 2531

<sup>28</sup> SWRCB-Class II: Waste Management Units for Designated Waste, California Code of Regulations, title 27, section 20250

<sup>29</sup> SWRCB-Class III: Landfills for Nonhazardous Solid Waste, California Code of Regulations, title 27, section 20260

panel glass satisfying the statute is disposed of as nonhazardous waste. RCRA hazardous waste must only be disposed at a RCRA permitted facility.

As such, the requirements in this article describe the specific waste classification criteria that must be met for CRT panel glass to be eligible for nonhazardous waste disposal, in addition to other management activities, including tracking and transportation requirements for a universal waste handler who disposes of CRT panel glass. It is necessary to include specific waste criteria to ensure that the CRT panel glass has been properly separated from CRT funnel glass and frit and will meet the criteria in Health and Safety Code section 25141.5 to be eligible for disposal (i.e., be hazardous solely for exceeding the TTLC and not STLC). It is necessary to add management, tracking, and transportation standards to clarify that CRT panel glass, once separated from CRT funnel glass and frit, and upon meeting the waste criteria, remains a hazardous waste up until the point it is received as waste excluded from classification as a hazardous waste by the operator of the CRT panel glass approved landfill. Therefore, the CRT panel glass remains subject to hazardous waste regulations, found in this article, to ensure it is managed safely and properly onsite when stored and accumulated prior to disposal.

DTSC believes it will be unclear to the regulated community if CRT panel glass eligible for disposal is regulated as either hazardous waste or as universal waste prior to its disposal in a facility other than a permitted hazardous waste disposal facility. Particularly, DTSC is concerned that if other handlers see universal waste shipments going to CRT panel glass approved landfills for disposal, they might think it is permissible to dispose of other categories of universal waste in that manner. Equally important is to keep the CRT panel glass segregated and tracked separately from the other boxes of CRT glass generally present at the CRT recycling facilities. To designate the treated CRT panel glass in a different category and to avoid confusion, DTSC is promulgating separate and distinct standards for the separated and tested CRT panel glass ("Excluded Hazardous Waste – CRT Panel Glass"). These standards are:

- CRT panel glass must be contained in a container or package that is structurally sound and able to prevent release to the environment;
- Clearly mark and label accumulation area – "Excluded Hazardous Waste – CRT Panel Glass";
- Accumulate "Excluded Hazardous Waste – CRT Panel Glass" no longer than 180 days;
- Provide personnel training to persons managing the "Excluded Hazardous Waste – CRT Panel Glass";

- Immediately respond to releases of “Excluded Hazardous Waste – CRT Panel Glass”;
- Submit a notification and certification to DTSC before shipping any “Excluded Hazardous Waste – CRT Panel Glass” to a CRT panel glass approved landfill and modify when necessary (e.g., when the treatment method generating the “Excluded Hazardous Waste – CRT Panel Glass” changes);
- Keep records of each shipment of “Excluded Hazardous Waste – CRT Panel Glass” sent to a CRT panel glass approved landfill;
- Provide copies of the notification and certification to the transporter; and
- Ensure a copy of the notification and certification is kept by the landfill operator and a copy of the notification and certification is signed by the landfill operator and returned to the universal waste handler (for their records).

An additional waste classification requirement limits the total amount of lead that is allowed in the “Excluded Hazardous Waste – CRT Panel Glass,” based on manufacturing claims that some CRT panel glass could contain a maximum of 3% lead by weight, which is equal to 30,000 mg/kg of total lead. As a result of this proposed regulation, any “Excluded Hazardous Waste – CRT Panel Glass” that exceeds this 3% limit for lead, using the test method in the waste criteria section, will not be eligible for disposal in a CRT panel glass approved landfill. This criterion will ensure the other two components of the CRT, the CRT funnel and frit glasses, are not disposed of in a CRT panel glass approved landfill.

CRT funnel, neck, and frit glass contain a high concentration of lead (up to 30% in volume), which exceeds regulatory soluble threshold limits based on the TCLP test method. DTSC presumes that any CRT panel glass that exceeds the 3% lead limit (i.e., exceeds a TTLC of 30,000 mg/kg for lead) contains some amount of CRT funnel glass and/or frit and would be characterized as a RCRA hazardous waste. Glass that exceeds these levels meets the criteria of a RCRA hazardous waste and is regulated under the federal hazardous waste program. As such, DTSC must ensure standards applicable to these glasses are as stringent as the standards imposed under the federal RCRA program. As a federally regulated hazardous waste, processed CRT glass (e.g., CRT funnel glass and frit) are conditionally excluded under U.S. EPA’s “CRT Rule” (40 C.F.R. §§ 260-261, 71 Fed. Reg. 42928 (Jul. 28, 2006)) when sent to a CRT glass manufacturer or lead smelter, or are potentially excluded when used or reused as described in 40 Code of Federal Regulations part 261.2(e)(1). However, as clarified in the U.S. EPA’s “2006 CRT Rule,” any glass (i.e., CRT funnel glass and frit) that is disposed would need to be managed as fully regulated hazardous waste, including disposal in a permitted hazardous waste disposal facility. Therefore, it is necessary that these standards ensure such glass is not managed under Health and Safety Code section 25141.5, subdivision (b)(3)(A).

Conversely, CRT panel glass can be managed as an excluded hazardous waste since it does not meet the federal hazardous waste criteria. The waste is managed as California only non-RCRA hazardous waste if the waste only exceeds the criteria for TTLC. As such, “Excluded Hazardous Waste – CRT Panel Glass” is not subject to the federal CRT exclusion rule once it is separated from the CRT funnel glass. Therefore, the proposed regulation limit of 3% lead for CRT panel glass is a necessary safeguard to ensure the waste is managed in California and meets the federal hazardous waste management standards.

DTSC determined that it was appropriate to create a new article for CRT panel glass destined for disposal in a CRT panel glass approved landfill because of its unique status as a tested and certified waste which is to be excluded hazardous waste when disposed. “Excluded Hazardous Waste – CRT Panel Glass” that is eligible for disposal (i.e., it meets the waste testing criteria, also established in this article) is not a universal waste, nor a fully regulated hazardous waste. Also, for clarity, DTSC includes CRT panel glass that meets the requirements and criteria for the disposal of CRT panel glass as specified in this proposed regulation (Cal. Code Regs., tit. 22, sec. 66273.81) in California Code of Regulations, title 22, section 66261.4 (Exclusions).



## **DETAILED STATEMENT OF REASONS: SUMMARY AND RATIONALE**

### Chapter 23. Standards for Universal Waste Management

Article 1. General

Article 2. [Reserved]

Article 3. Standards for Universal Waste Handlers

Article 4. Export and Import Requirements

Article 5. Standards for Universal Waste Transporters

Article 6. Standards for Destination Facilities

Article 7. Authorization Requirements for Universal Waste Handlers Who Treat  
Universal Wastes

Article 8. Requirements for the Disposal of CRT Panel Glass

### Article 8. Requirements for the Disposal of CRT Panel Glass

§ 66273.80. Applicability.

§ 66273.81. Criteria for Determining CRT Panel Glass Eligible for Disposal.

§ 66273.82. Management of CRT Panel Glass Prior to Disposal.

§ 66273.83. Tracking Shipments of CRT Panel Glass.

§ 66273.84. Offsite Transportation.

§ 66273.85. [Reserved].

§ 66273.86. [Reserved].

§ 66273.87. [Reserved].

§ 66273.88. [Reserved].

§ 66273.89. [Reserved].

**Amend the following section contained in  
Chapter 11. Identification and Listing of Hazardous Waste<sup>30</sup>**

**Amend section 66261.4, Exclusions:** This section specifies what is not subject to the provisions of chapter 11, Identification and Listing of Hazardous Waste. **Subsection (h)** is added to exclude from classification as a hazardous waste CRT panel glass that is destined for disposal in a CRT panel glass approved landfill and meets the criteria specified by these final regulations in amended sections 66273.73 and 66273.75 and newly added article 8 of chapter 23. This article is necessary to specify the conditions that CRT glass must meet to be excluded from classification as a hazardous waste. Since CRTs are a diminishing legacy waste stream with few viable recycling options, it has become necessary to identify alternative disposition options for CRT glass. DTSC has determined that this exclusion and the continued management of CRTs under universal waste alternative management standards will enable appropriate oversight to protect human health and the environment. It further emphasizes for the benefit of universal waste handlers working within chapter 23 that generator and hazardous waste fees do not apply to this waste. **Subsection (i)** is added to exclude CRT panel glass that is managed in accordance with section 25143.2.5 of the Health and Safety Code.<sup>31</sup> This provision is necessary to direct the regulated entity to the newly implemented California statute that amends chapter 6.5 of the Health and Safety Code, adding section 25143.2.5 to allow for the recycling of hazardous waste CRT panel glass by exempting the material from DTSC's hazardous waste regulations if certain conditions, outlined in the statute, are met.

**Amend Note section:** Certain sections of the Health and Safety Code have been repealed and are deleted from the proposed regulatory text. Health and Safety Code section 25158.4 has been deleted from the Authority section as it is an obsolete authority. Health and Safety Code sections 25158.2 and 25158.3 have been deleted from the Reference sections as they are obsolete references and no longer exist. These modifications are necessary to avoid confusion to the regulated community.

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<sup>30</sup> Unless otherwise specified, all regulatory citations from this point forward are to the California Code of Regulations, title 22, division 4.5.

<sup>31</sup> Assembly Bill (AB) 1419 (Eggman, Chapter 445, Stats. 2016) Hazardous waste: cathode ray tube glass. Effective January 1, 2017.

**Amend, Add, or Delete the following sections to  
Chapter 23. Standards for Universal Waste Management**

In general, chapter 23 implements DTSC's universal waste program, which includes electronic devices subject to EWRA. Article 1 addresses general subjects, including the applicability of chapter 23 to electronic devices, CRTs, and CRT glass, and the definitions of the terms used in chapter 23. Editorial changes have been made throughout the chapter to clarify amendments, additions, and deletions.

**Amend section 66273.6, Applicability–Cathode Ray Tubes (CRTs):** This section makes specific the scope of CRTs to which chapter 23 requirements apply.

**Subsections (a)(1) and (a)(2)** are added to clarify CRTs that are subject to chapter 23, as opposed to stating in subsection (b), those that are not subject to the chapter.

**Subsection (a)(1)** clarifies that CRTs destined for treatment by a universal waste handler pursuant to subsection (c) of section 66273.72 or section 66273.73 of this chapter are subject to chapter 23 requirements. **Subsection (a)(2)** specifies that CRTs destined for a CRT glass manufacturer or primary or secondary lead smelter are subject to chapter 23 requirements. This is necessary to specify to universal waste handlers what types of activities associated with the handling of universal waste CRTs can be managed under the authority of universal waste regulations outlined in chapter 23.

Existing language in subsection (b)(3) identifies two dispositions for which CRTs may not be managed pursuant to the reduced standards of chapter 23. The first includes CRTs that are destined for recycling (or are recycled) by including those that are "used in a manner constituting disposal." The second includes "CRTs destined for disposal (or disposed) in class I landfills." **Subsection (b)(3)** is amended to repeal the prohibition of CRT disposal in class I landfills by universal waste handlers.<sup>32</sup> This is necessary to allow universal waste handlers operating under chapter 23 to make the determination to dispose of CRTs and subsequently manage the CRTs as hazardous waste.

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<sup>32</sup> The term "class I" originates in State Water Resources Control Board Regulations (Cal. Code Regs., tit. 23, sec. 2531). The proposed regulations use "permitted hazardous waste disposal facilities" in place of this term.

**Subsection (b)(4)** is added to allow universal waste handlers to manage CRTs pursuant to the alternative management standards of chapter 23, until the determination to dispose is made. As used in chapter 23, the term “class I landfills” only applies to RCRA-equivalent hazardous waste landfills in California permitted by DTSC.<sup>33</sup> To broaden the applicability of chapter 23 to include specified CRTs destined for disposal in any RCRA-equivalent hazardous waste landfill located inside or outside of California when allowed by section 66273.72 of this chapter, the term “permitted hazardous waste disposal facility” is used in place of the term “class I landfills” in subsection (b)(4). DTSC does not want to exclude the legal and safe disposal of CRTs in RCRA permitted “Subtitle C” disposal facilities outside of California which may not meet the definition of class I landfills.

As a result of the diminishing viability of CRT glass manufacturers as an ultimate disposition option for CRT glass generated from treatment pursuant to section 66273.72, this CRT disposal option is necessary to further the purposes of the EWRA by providing an additional ultimate disposition option for CRTs that is proper, legal, safe, and environmentally sound, and available to CalRecycle for inclusion in its cost reimbursement program. Existing **subsections (b)(4)** and **(b)(5)** are renumbered accordingly to accommodate the addition of new subsection **(b)(4)**.

**Amend section 66273.7, Applicability–Cathode Ray Tube (CRT) Glass:** This section is necessary to specify to universal waste handlers the scope of CRT glass to which chapter 23 requirements apply. **Subsections (a)(1)** and **(a)(2)** are added to clarify CRT glass that is subject to chapter 23, as opposed to stating in subsection (b), CRT glass which is not subject to the chapter. **Subsection (a)(1)** clarifies that CRT glass destined for further treatment by a universal waste handler pursuant to section 66273.73 of this chapter is subject to chapter 23 requirements. This is necessary so that the universal waste handler understands that any CRT glass that is further treated can still be managed under chapter 23 requirements. **Subsection (a)(2)** specifies that CRT glass destined for the end dispositions of CRT glass manufacturers or primary or secondary lead smelters are subject to chapter 23 requirements. This provision is necessary to further encourage recycling of CRT glass by universal waste handlers through the only viable recycling options known to DTSC. **Subsection (a)(3)** specifies that CRT panel glass destined for disposal in a CRT panel glass approved landfill is covered by chapter 23 requirements. It is necessary to recognize CRT panel glass, as it is a newly defined term in chapter 23. Additionally, CRT panel glass has been shown to be of lower risk, allowing for expanded disposition options as long as the criteria outlined in section 66273.81 are met. Likewise, in **subsection (a)(4)**, CRT funnel glass, also a newly defined term, destined for the end dispositions of CRT glass manufacturer or primary or

<sup>33</sup> This term originates in State Water Resources Control Board Regulations (Cal. Code Regs., tit. 23, sec. 2531). The proposed regulations use “permitted hazardous waste disposal facilities” in place of this term.

secondary lead smelter, is recognized as being covered by chapter 23. This provision is necessary to further encourage recycling of leaded CRT funnel glass by universal waste handlers through the only viable recycling options known to DTSC.

Existing language in subsection (b)(3) identifies two dispositions for which CRT glass may not be managed pursuant to the alternative standards of chapter 23. The first includes CRT glass that is destined for recycling (or is recycled) by being "used in a manner constituting disposal." The second includes "CRT glass that is destined for disposal (or disposed) in class I landfills." **Subsection (b)(3)** is amended to repeal the prohibition of CRT glass disposal in class I landfills by universal waste handlers. This is necessary to allow universal waste handlers operating under chapter 23 to make the determination to dispose of CRT glass and subsequently manage the CRT glass as hazardous waste.

**Subsection (b)(4)** is added to allow universal waste handlers to manage CRT glass pursuant to the alternative standards of chapter 23 until the determination to dispose is made. As used in chapter 23, the term "class I landfills" only applies to RCRA-equivalent hazardous waste landfills in California permitted by DTSC.<sup>34</sup> To broaden the applicability of chapter 23 to include specified CRT glass destined for disposal in any RCRA-equivalent hazardous waste landfill located inside or outside of California when allowed by section 66273.75 of this chapter, the term "permitted hazardous waste disposal facility" is used in place of the term "class I landfills" in subsection (b)(4). DTSC does not want to exclude the legal and safe disposal of CRT glass in RCRA permitted "Subtitle C" disposal facilities outside of California which may not meet the definition of class I landfills. This provision is necessary because it clarifies at what point universal waste handlers may no longer manage the hazardous waste CRT glass under chapter 23 and must manage it as fully regulated hazardous waste.

As a result of the diminishing viability of CRT glass manufacturers as an ultimate disposition option for CRT glass generated by the treatment of CRTs pursuant to section 66273.75, this disposal option is necessary to further the purposes of the EWRA by providing an additional ultimate disposition option for CRT glass that is proper, legal, safe and environmentally sound and available to CalRecycle for its cost reimbursement program in light of the shrinking CRT glass manufacturer option.

**Subsection (b)(5)** is added to clarify that CRT panel glass received by a CRT panel glass approved landfill for the purpose of disposal, is not subject to chapter 23 universal waste standards. While the CRT panel glass is stored, treated, and transported prior to disposal, it is subject to the requirements of article 8 of chapter 23. This provision is necessary to identify to the universal waste handler and CRT panel glass approved landfill when CRT panel glass can no longer be managed under the authority of chapter 23.

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<sup>34</sup> The designation, "class I" originates in California Water Board Regulations (Cal. Code Regs., tit. 23 sec. 2531).

DTSC determined that it is appropriate for CRT panel glass to be disposed of in a CRT panel glass approved landfill because of its unique status as a tested and certified waste and to increase disposal opportunities given the decreasing disposition options for CRT glass, including CRT panel glass. CRT panel glass is not a universal waste, nor a fully regulated hazardous waste, if it meets the requirements in article 8. Former subsection (b)(4) is renumbered as (b)(6) to accommodate the addition of new subsection (b)(4). A minor grammatical and/or editorial amendment is proposed to **subsection (b)(6)**. The word “through” should have been originally inserted between 10 and 16 in order to include chapters 11, 12, 13, 14 and 15.

**Subsection (b)(7)** is added to exclude CRT panel glass that is managed in accordance with section 25143.2.5 of the Health and Safety Code. It is necessary to clarify that CRT panel glass meeting the requirements of this statute is not subject to chapter 23.

**Amend section 66273.9, Definitions:** This section defines terms used in chapter 23. This section is amended to add or amend definitions used in chapter 23 as explained below.

**Summary of Definitions Added/Amended**

Added	Amended
CRT funnel glass CRT panel glass CRT panel glass approved landfill Frit Intermediate facility	CRT glass

Add the definition of “CRT funnel glass.” The definition is added to the section to clarify the use of the term for purposes of this chapter. A different version of this definition was adopted in previous emergency regulations which predated the implementation of Health and Safety Code section 25143.2.5. This definition modification is necessary in order to avoid clarity issues, and has been revised to be identical to the definition in section 25143.2.5 of the Health and Safety Code. This duplication is necessary in chapter 23, as this universal waste standards chapter was designed for the ease of use of the universal waste handler by accepting some redundancy of language and terms used in other chapters of this division. A universal waste handler accustomed to chapter 23, and specifically accustomed to emergency regulations that have been published since 2012, may be confused by the deletion of the definition. A reader of these regulations may not necessarily know where to look in statute for the definition of a crucial term used in this chapter. Also, for practical purposes, the definition of a portion of a CRT should be located in proximity to the definition of a CRT.



Amend the definition of "CRT glass." Under the existing regulations, the definition of "CRT glass" limits the applicability of chapter 23 to specified glass that is subsequently reclaimed at a CRT glass manufacturer or primary or secondary lead smelter. The definition of CRT glass is amended to remove this limitation, and to broaden the applicability of chapter 23 to include the specified glass when it is subsequently disposed in accordance with article 7 of chapter 23. It is necessary to increase the scope of chapter 23 to include other disposition options for CRT glass and to offset the dwindling availability of CRT glass manufacturers as a disposition option. Additionally, this definition clarifies that CRT glass includes both CRT funnel glass and CRT panel glass.

Add the definition of "CRT panel glass." The definition is added to the section to clarify the use of the term for purposes of this chapter. A different version of this definition was adopted in previous emergency regulations which predated the implementation of Health and Safety Code section 25143.2.5. In order to avoid clarity issues, this definition has been revised to be identical to the definition in section 25143.2.5 of the Health and Safety Code. This duplication is necessary in chapter 23, as this universal waste standards chapter was designed for the ease of use of the universal waste handler by accepting some redundancy of language and terms used in other chapters of this division. A universal waste handler accustomed to chapter 23, and specifically accustomed to emergency regulations that have been published since 2012, may be generally confused by the deletion of the definition. A reader of these regulations may not necessarily know where to look in statute for the definition of a crucial term used in this chapter. Also, for practical purposes, the definition of a portion of a CRT should be located in proximity to the definition of a CRT.

Add the definition of "CRT panel glass approved landfill." The definition is added to the section to clarify the use of the term for purposes of this chapter. This definition is necessary to provide a description of a municipal solid waste landfill to which CRT panel glass may be disposed and remain protective of human health and the environment. Upon the determination for disposal, the CRT panel glass may be disposed to a composite lined portion of a solid waste landfill that meets requirements for discharges of designated wastes. Such solid waste landfills are commonly known as class II landfills in California. CRT panel glass may also be disposed to municipal solid waste landfills other than those commonly known as class II landfills (i.e., those commonly known as class III landfills) if the landfill meets its Waste Discharge Requirements (WDRs) with the acceptance of CRT panel glass. Notwithstanding the above requirements, each landfill has the right to turn away any waste and should be contacted prior to any transport of CRT panel glass for disposal.

Add the definition of “Frit.” The definition is added to the section to clarify the use of the term for purposes of this chapter. This definition is necessary as it is a material that distinguishes the difference between CRT funnel glass and CRT panel glass, which

Add the definition of “Intermediate facility.” The definition is added to the section to clarify the use of the term for purposes of this chapter. This definition is necessary to distinguish facilities that are not final destination facilities.

**Amend Article 7, Authorization Requirements for Universal Waste Handlers Who Treat Universal Wastes**

Article 7 covers the treatment of CRTs and CRT glass. In general, the proposed amendments and additions to article 7 are necessary for one of the following purposes: (a) to provide for the treatment of CRTs and CRT glass that are subsequently disposed as allowed by chapter 23; (b) to specify the applicable post-treatment management standards for each of those waste streams; or (c) to improve the enforceability of the regulatory limitations on the allowable disposition options for the treated CRTs and CRT glass.

**Amend section 66273.70, Applicability:** This section specifies and consolidates the types of authorized treatment activities and refers readers to the applicable sections within article 7 that specify the conditions required for authorization for each of those treatment activities.

**Subsection (b)** is amended to add the disposal of CRTs or CRT glass as an allowable disposition for the purpose of authorization for universal waste handlers who treat CRT devices, or CRTs (i.e., CRT recyclers). Also, the requirements of the new article 8 (added by these regulations) are added to the list of conditions that the universal waste handler must comply with in order to be deemed authorized by DTSC to conduct the treatment activities specified in subsection (c) of this section. It is necessary to increase the scope of chapter 23 to include other disposition options for CRT glass and to offset the dwindling availability of CRT glass manufacturers as a disposition option.

**Amend section 66273.72, Authorization for Disassembling/Draining Activities:**

This section creates a self-implementing authorization for universal waste handlers who conduct disassembly and/or draining activities. This section also specifies the appropriate management standards for the different levels of treatment within this category of authorized treatment.

**Subsection (a)(5)** is amended to delete the term “residual” as a descriptor of CRTs and/or CRT glass. This is a minor correction in language since section 66273.73, to which subsection (a)(5) refers, does not use residual as a descriptor. This change is necessary to make the language consistent and remove any potential for confusion with the terms used.

Subsection (b) applies to universal waste handlers who remove CRTs from CRT devices but do not remove the yokes. Subsection (c) applies to universal waste handlers who do remove the yokes from CRTs. **Subsection (b)(2)** is amended to remove the exemption from notification, annual reporting, and recordkeeping requirements for subsection (b) universal waste handlers who only remove the CRT tubes from the CRT devices but do not remove the yokes from the CRTs. Existing regulations were written to exempt a particular subset of businesses that were not interested in becoming universal waste handlers or universal waste handlers who treat (e.g., CRT recyclers) from having to notify as universal waste handlers. It is necessary to delete this exemption from notification as activities exempted from notification by the existing regulations are no longer taking place. New **subsection (b)(2)(A)** is added to make the notification, annual reporting, and recordkeeping requirements specified in section 66273.74 applicable to a section 66273.72(b) universal waste handler. This is necessary to ensure that DTSC can oversee and verify the CRT handling activities that are claimed to be conducted by universal waste handlers and to ensure they are being protective of human health and the environment. The existing subsections under (b)(2) are renumbered to accommodate the insertion of new subsection (b)(2)(A).

**Subsection (b)(2)(F)** is added to specify the management of the CRTs removed from CRT devices by a subsection (b) universal waste handler. The universal waste subsection (b) handler is given the explicit initial options of either treating the CRTs pursuant to subsection 66273.72(c) or sending the CRTs to another California universal waste handler authorized to remove the yoke and/or further treat the CRTs pursuant to section 66273.73. If the subsection (b) universal waste handler does not choose either of these options, then the handler must ensure that the CRTs are recycled or disposed, as added in subsection (b)(3). This provision is necessary to ensure that CRTs are treated prior to recycling or disposal

**Subsection (b)(3)** is added to specify the options available to the subsection (b) universal waste handler who does not remove yokes from CRTs and does not send the CRTs to a section 66273.72(c) universal waste handler to remove the yoke or for further treatment by another universal waste handler pursuant to section 66273.73 of this chapter. This subsection lists the specific actions that the subsection (b) universal waste handler must take to ultimately ensure that CRTs reach an allowable destination. This provision is necessary to allow DTSC enforcement staff to hold subsection (b) universal waste handlers responsible for any improper handling or dispositions of CRTs with specific enforceable language.

**Subsection (b)(3)(A)** is added to clarify that a universal waste handler who does not further treat and does not send or take CRTs for further treatment pursuant to subsection 66273.72(c) or section 66273.73, must ensure that the CRTs are either recycled or disposed. This provision is necessary to allow DTSC enforcement staff to

hold subsection (b) universal waste handlers responsible for any improper handling or dispositions of CRTs with specific enforceable language. Additionally, the disposal option under chapter 23 is necessary to accommodate the decreasing availability of recycling options for CRTs, in addition to mitigating illegal disposal.

**Subsection (b)(3)(B)** is added to specify that the universal waste handler must either: ship the CRTs as universal waste for reclamation at a CRT glass manufacturer or primary or secondary lead smelter; or ship the CRTs as a hazardous waste for disposal. This subsection is necessary to inform the universal waste handler of the disposition options allowed. Depending on the disposition option chosen, the universal waste handler will be subject to the standards in subsection (b)(3)(C) or (b)(3)(D).

**Subsection (b)(3)(C)** is added to specify what is required of a universal waste handler who chooses to dispose of CRTs at a permitted hazardous waste disposal facility. This is necessary to give DTSC the ability to track the handlers who pursue this option and know in advance the disposal destination, thereby allowing DTSC to research the qualifications of the destination. Upon deciding to dispose the CRTs, the universal waste handler is to be deemed the generator of hazardous waste CRTs in **subsection (b)(3)(C)1**. This is necessary to give DTSC the ability to track the handlers who pursue this option and ensure handler is meeting the requirements for hazardous waste generators. The universal waste handler who is the generator of hazardous waste CRTs shall manage the CRTs as hazardous waste according to the specified chapters within this division as stated in **subsection (b)(3)(C)2**. This is necessary to ensure that hazardous wastes are being appropriately handled and managed by generators to be protective of human health and the environment. Additionally, **subsection (b)(3)(C)3** specifies that the universal waste handler shall notify DTSC of the intent to dispose in accordance with 66273.74(a)(2). This is necessary to give DTSC the ability to track the handlers who pursue this option and know in advance the disposal destination, thereby allowing DTSC to research the qualifications of the destination.

**Subsection (b)(3)(D)** is added to specify what a universal waste handler is required to do to ensure that universal waste CRTs are sent to a CRT glass manufacturer or a primary or secondary lead smelter. This is necessary to give DTSC the ability to oversee the handlers who pursue this option to ensure their activities are protective of human health and the environment.

**Subsection (b)(3)(D)1**. is added to specify that a universal waste handler who ships the CRTs to an intermediate facility prior to sending the universal waste CRTs to a CRT glass manufacturer or a primary or secondary lead smelter, must make a contractual arrangement with any intermediate facility to ensure the CRTs and/or CRT glass are subsequently sent to a CRT glass manufacturer or lead smelter. The contractual arrangement between the universal waste handler of CRTs and the intermediate facility

(e.g., out-of-state CRT processor) proposed in these final regulations is necessary to ensure the CRTs of the California universal waste handler are recycled or disposed. The necessity of this provision of the proposed regulations is exemplified by the abandonment of large quantities of CRTs and CRT glass by a company in Arizona that had gone out of business. These sections in the emergency regulations gave DTSC enforcement the authority to direct California universal waste handlers to redirect the quantities of CRTs and CRT glass that they had shipped to the Arizona company to an acceptable disposition.

**Subsection (b)(3)(D)2.** is added to specify the additional information a universal waste handler must document and maintain onsite, pursuant to section 66273.74, in order to ship CRTs to a CRT glass manufacturer or primary or secondary lead smelter as universal waste. The maintenance of these records are necessary to provide some tracking mechanisms for the flow of CRTs to the final dispositions of CRT glass manufacturer and/or lead smelter; or to other facilities (if applicable). These required records include the quantities of CRTs, dates of departure, and dates of arrival to the final destinations. Subsections a through f under subsection (b)(3)(D)2 are detailed below.

**Subsection (b)(3)(D)2.a.** indicates that records of the name, address, and telephone number of the transporter of the CRTs must be maintained onsite. This information is necessary to provide some tracking mechanisms for the flow of CRTs to the final dispositions.

**Subsection (b)(3)(D)2.b.** indicates that records of the name and address of the CRT glass manufacturer and/or primary or secondary lead smelter must be maintained onsite. This information is necessary to provide some tracking mechanisms for the flow of CRTs to the final dispositions.

**Subsection (b)(3)(D)2.c.** indicates that records of the name, address, and telephone number of any facility the CRTs are shipped to, which is not the final disposition and is not a universal waste handler authorized to treat CRTs pursuant to subsection 66273.72(c) or section 66273.73, must be maintained onsite. This information is necessary to provide some tracking mechanisms for the flow of CRTs to the final dispositions.

**Subsection (b)(3)(D)2.d.** indicates that records of contractual arrangements must be maintained onsite if the handler does not ship the CRTs directly to a final disposition, or to a universal waste handler authorized to treat CRTs pursuant to subsection 66273.72(c) or section 66273.73. The contractual arrangement provides a clearly stated obligation that allows the handler to seek recourse against the intermediate facility in case the facility does not handle the CRTs as promised. The handler is responsible to ensure that the CRTs reach an allowable destination and would be in violation if they



could not ensure. This information is necessary to provide some tracking mechanisms for the flow of CRTs to the final dispositions. This information provides a link to the entity contractually responsible, and whose shipping documents may be used as an indication that the CRTs reached the final destination intended by the handler.

**Subsection (b)(3)(D)2.e.** indicates that records of the quantities of CRTs and departure date of each shipment of CRTs made pursuant to subsection (b)(3)(D)1 must be maintained onsite. This information is necessary to provide some tracking mechanisms for the flow of CRTs to the final dispositions.

**Subsection (b)(3)(D)2.f.** indicates that records of confirmation receipts of CRT glass shipments received by the CRT glass manufacturer or lead smelter must be maintained onsite and must have dates no later than 90 days after the departure date in subsection (b)(3)(D)2.e. This information is necessary to provide some tracking mechanisms for the flow of CRTs to the final dispositions.

**Subsection (c)(2)(B)** is amended to clarify that residuals from dismantling activities that are scrap metal are required to be recycled. It is necessary to specify that residuals are appropriately recycled to ensure residuals are being recycled in accordance with the scope of chapter 23. CRT glass generated accidentally or intentionally would subject the handler to article 3 requirements or article 7 requirements, respectively. Therefore, it is necessary to remove the management of CRT glass in this subsection.

**Subsection (c)(2)(C)** is added to clarify that a universal waste handler who performs further treatment on a CRT pursuant to article 7, or sends or takes CRTs to a handler who performs further treatment on CRTs pursuant to article 7, is not subject to any additional requirements added to this section (i.e., subsection (c)(3)). This provision is necessary to ensure the universal waste handler understand what requirements they are subject to. The existing subsections under (c)(2) are renumbered to accommodate the insertion of new subsection (c)(2)(C).

**Subsection (c)(3)** is added to specify the options available to the subsection (c) universal waste handler who removes yokes from CRTs, but does not perform further treatment upon the CRT pursuant to section 66273.73 (e.g., breaks the CRTs into CRT glass) and does not send or take CRTs to a section 66273.73 universal waste handler for further treatment. This provision is necessary to allow DTSC enforcement staff to hold subsection (b) universal waste handlers responsible for any improper handling or dispositions of CRTs with specific enforceable language. This subsection lists the specific actions that the subsection (c) handler must take to ultimately ensure that CRTs reach an allowable destination.

**Subsection (c)(3)(A)** is added to clarify that a universal waste handler who does not further treat and does not send or take CRTs for further treatment pursuant to section 66273.73, must ensure that the CRTs are either recycled or disposed. This provision is



necessary to allow DTSC enforcement staff to hold subsection (c) universal waste handlers responsible for any improper handling or dispositions of CRTs with specific enforceable language. Additionally, the disposal option under chapter 23 is necessary to accommodate the decreasing availability of recycling options for CRTs, in addition to mitigating illegal disposal.

**Subsection (c)(3)(B)** is added to specify that the universal waste handler must either ship the CRTs as universal waste for reclamation at a CRT glass manufacturer or primary or secondary lead smelter; or ship the CRTs as a hazardous waste for disposal. This subsection is necessary to inform the universal waste handler of the disposition options allowed. Depending on the disposition option chosen, the universal waste handler will be subject to the standards in subsection (c)(3)(C) or (c)(3)(D).

**Subsection (c)(3)(C)** is added to specify what is required of a universal waste handler who chooses to dispose of CRTs at a permitted hazardous waste disposal facility. This is necessary to give DTSC the ability to track the handlers who pursue this option and know in advance the disposal destination, thereby allowing DTSC to research the qualifications of the destination. Upon deciding to dispose the CRTs, the universal waste handler is to be deemed the generator of hazardous waste CRTs in **subsection (c)(3)(C)1**. This is necessary to give DTSC the ability to track the handlers who pursue this option and ensure handler is meeting the requirements for hazardous waste generators. The universal waste handler who is the generator of hazardous waste CRTs shall manage the CRTs as hazardous waste according to the specified chapters within this division as stated in **subsection (c)(3)(C)2**. This is necessary to ensure that hazardous wastes are being appropriately handled and managed by generators to be protective of human health and the environment. Additionally, **subsection (c)(3)(C)3** specifies that the universal waste handler shall notify DTSC of the intent to dispose in accordance with 66273.74(a)(2). This is necessary to give DTSC the ability to track the handlers who pursue this option and know in advance the disposal destination, thereby allowing DTSC to research the qualifications of the destination.

**Subsection (c)(3)(D)** is added to specify what a universal waste handler is required to do to ensure that universal waste CRTs are sent to a CRT glass manufacturer or a primary or secondary lead smelter. This is necessary to give DTSC the ability to oversee the handlers who pursue this option to ensure their activities are protective of human health and the environment.

**Subsection (c)(3)(D)1**. is added to specify that a universal waste handler who ships the CRTs to an intermediate facility prior to sending the universal waste CRTs to a CRT glass manufacturer or a primary or secondary lead smelter must make a contractual arrangement with any intermediate facility to ensure the CRTs and/or CRT glass are subsequently sent to a CRT glass manufacturer or lead smelter. The contractual

arrangement between the universal waste handler of CRTs and the intermediate facility (e.g., an out-of-state CRT processor), proposed in these final regulations is necessary to maintain the necessary control to ensure the CRTs of the California universal waste handler are recycled or disposed. The necessity of this provision of the proposed regulations is exemplified by the abandonment of large quantities of CRTs and CRT glass by a company in Arizona that had gone out of business. These sections in the emergency regulations gave DTSC enforcement the authority to direct California universal waste handlers to redirect the quantities of CRTs and CRT glass, which they had shipped to the Arizona company, to an acceptable disposition.

**Subsection (c)(3)(D)2.** is added to specify the additional information a universal waste handler must document and maintain onsite, pursuant to section 66273.74 of this chapter, in order to ship CRTs to a CRT glass manufacturer or primary or secondary lead smelter as universal waste. The maintenance of these records are necessary to provide some tracking mechanisms for the flow of CRTs to the final dispositions of a CRT glass manufacturer and/or lead smelter, or to other facilities (if applicable). These required records include the quantities of CRTs, dates of departure, and dates of arrival to the final destinations. Subsections a through f under subsection (c)(3)(D)2 are detailed below.

**Subsection (c)(3)(D)2.a.** indicates that records of the name, address, and telephone number of the transporter of the CRTs must be maintained onsite. This information is necessary to provide some tracking mechanisms for the flow of CRTs to the final dispositions.

**Subsection (c)(3)(D)2.b.** indicates that records of the name and address of the CRT glass manufacturer and/or primary or secondary lead smelter must be maintained onsite. This information is necessary to provide some tracking mechanisms for the flow of CRTs to the final dispositions.

**Subsection (c)(3)(D)2.c.** indicates that records of the name, address, and telephone number of any facility the CRTs are shipped to, which is not the final disposition and is not a universal waste handler authorized to treat CRTs pursuant to section 66273.73, must be maintained onsite. This information is necessary to provide some tracking mechanisms for the flow of CRTs to the final dispositions.

**Subsection (c)(3)(D)2.d.** indicates that records of contractual arrangements must be maintained onsite if the handler does not ship the CRTs directly to a final disposition, or to a universal waste handler authorized to treat CRTs pursuant to section 66273.73. This information is necessary to provide some tracking mechanisms for the flow of CRTs to the final dispositions.

**Subsection (c)(3)(D)2.e.** indicates that records of the quantities of CRTs and departure date of each shipment of CRTs made pursuant to subsection (c)(3)(D)1, must be

maintained onsite. This information is necessary to provide some tracking mechanisms for the flow of CRTs to the final dispositions.

**Subsection (c)(3)(D)2.f.** indicates that records of confirmation receipts of CRT glass shipments received by the CRT glass manufacturer or lead smelter must be maintained onsite and must have dates no later than 90 days after the departure date in subsection (c)(3)(D)2.e. This information is necessary to provide some tracking mechanisms for the flow of CRTs to the final dispositions.

**Amend section 66273.73, Authorization for Treatment (Processing) Activities:**

This section establishes “self-implementing authorization” for handlers who conduct the types of authorized treatment described in this section. Subsection (c) lists eligible treatment methods pertaining to electronic devices, CRTs and residual printed circuit boards. This section was amended to include a new allowable treatment method regarding the separation of CRT panel glass from CRT funnel glass.

**Subsection (c)(1)(E)** is added to clarify that a universal waste handler is authorized to treat CRTs by physical separation of the two different glass types (CRT funnel glass and CRT panel glass) for the purpose of disposing the CRT panel glass pursuant to article 8 of these proposed regulations. The definitions of CRT panel glass and CRT funnel glass are necessary for the correct interpretation of separation of CRT panel glass from CRT funnel glass. By using these specific terms for the glass, a treatment method is established whereby the method ensures that each type of glass only contains certain components of the glass (i.e., the CRT funnel glass should contain the neck, funnel and frit). In addition, this clarification is necessary to ensure less stringent DTSC rules are not applied to RCRA hazardous waste, specifically regarding disposal.

**Subsection (c)(1)(F)** is added to clarify that a universal waste handler is authorized to treat CRTs by physical separation of the two different glass types (CRT funnel glass and CRT panel glass) for the purpose of managing the residual CRT panel glass in accordance with section 25143.2.5 of the Health and Safety Code. This distinction is necessary for universal waste handlers to understand that upon meeting the specified requirements in section 25143.2.5 of the Health and Safety Code, the material is excluded from DTSC’s hazardous waste regulations.

**Amend section 66273.74, Notification, Annual Reporting, and Recordkeeping:**

This section describes the notification, annual reporting, and certain types of recordkeeping required of universal waste handlers based on the activities performed. This section is amended to include a new written notification for universal waste handlers who determined to dispose of CRTs or CRT glass.

**Subsection (a)(2)** is added to clarify that within 15 days of determining to dispose of the CRTs or CRT glass, the handler must notify DTSC and provide specific information.

This provision is necessary to allow DTSC to have knowledge of the universal waste handler who intends to dispose of CRT panel glass pursuant to article 8 of this chapter, in order to prepare for inspections. **Subsection (a)(2)(A)** requires the handler to provide a hazardous waste identification number for the location of the facility where the CRTs and/or CRT glass was generated. This provision is necessary to allow DTSC to have knowledge of the universal waste handler who intends to dispose of CRT panel glass pursuant to article 8 of this chapter, in order to prepare for inspections. **Subsection (a)(2)(B)** requires the handler to describe their treatment method. This provision is necessary to allow DTSC to have knowledge of the universal waste handler who intends to dispose of CRT panel glass pursuant to article 8 of this chapter, in order to prepare for inspections. The existing subsection (a)(2) is renumbered to accommodate the insertion of the new subsection (a)(2).

**Subsection (b)(1)(J)1.** is amended to include CRTs as one of the treatment residuals tracked in the annual reports. This information is necessary to provide some tracking mechanisms for the flow of CRTs between locations. The parenthetical phrase “(e.g., lamps, batteries, etc.)” which provides examples of universal wastes to be tracked, was necessary to provide clarity for the universal waste handler.

**Subsection (b)(1)(J)2.a.** is amended to include the quantity of CRTs shipped to destinations for tracking purposes. This information is necessary to provide some tracking mechanisms for the flow of CRTs between locations. Also added are the descriptions of the new disposition options available for declaration of the final disposition of CRTs and CRT glass by universal waste handlers. This includes a destination facility for hazardous waste disposal and a CRT panel glass approved landfill for disposal of excluded CRT panel glass pursuant to article 8 of this chapter. The specific type of facility is necessary to give DTSC the ability to oversee the handlers who pursue the disposal option to ensure their activities are protective of human health and the environment.

**Subsection (c)(1)(A)1.** is amended to refer to subsection (a)(1) instead of subsection (a), due to the addition of new subsection (a)(2). Also, text that is repeated from subsection (a)(2) is deleted to avoid duplication. These amendments are necessary to clarify to the universal waste handler where to find the notification requirements.

**Subsection (c)(1)(A)2.** is added to clarify that a copy of the notification required by a universal waste handler upon determining that the CRTs and/or CRT glass is destined for disposal must be included in the universal waste handler's records. This provision is necessary to allow DTSC enforcement staff to hold universal waste handlers responsible for any improper handling or dispositions of CRTs with specific enforceable language.

Existing **subsection (c)(1)(A)2. and subsection (c)(1)(A)3.** are renumbered as **subsection (c)(1)(A)3. and subsection (c)(1)(A)4.** respectively, due to the insertion of new subsection (c)(1)(A)2.

**Subsection (c)(1)(A)5.** is added to specify that information pertaining to the shipments of CRTs sent for reclamation to a CRT glass manufacturer or primary or secondary lead smelter, as specified in subsection(b)(3)(D) of section 66273.72, must be kept as records by the universal waste handler. This includes details regarding the transporters; destinations; contractual arrangements (as applicable for intermediate facilities); dates and quantities of shipments; and confirmation receipts from the destinations. This provision is necessary to allow DTSC enforcement staff to hold universal waste handlers responsible for any improper handling or dispositions of CRTs with specific enforceable language.

**Subsection (c)(1)(A)6.** is added to specify that information pertaining to the shipments of CRTs sent for reclamation to a CRT glass manufacturer or primary or secondary lead smelter, as specified in subsection(c)(3)(D) of section 66273.72, must be kept as records by the universal waste handler. This includes details regarding the transporters; destinations; contractual arrangements (as applicable for intermediate facilities); dates and quantities of shipments; and confirmation receipts from the destinations. This provision is necessary to allow DTSC enforcement staff to hold universal waste handlers responsible for any improper handling or dispositions of CRTs with specific enforceable language.

**Subsection (c)(1)(A)7.** is added to specify that information pertaining to the shipments of CRT glass sent for reclamation to a CRT glass manufacturer or primary or secondary lead smelter, as specified in subsection(f)(5) of section 66273.75, must be kept as records by the universal waste handler. This includes details regarding the transporters; destinations; contractual arrangements (as applicable for intermediate facilities); dates and quantities of shipments; and confirmation receipts from the destinations. This provision is necessary to allow DTSC enforcement staff to hold universal waste handlers responsible for any improper handling or dispositions of CRTs with specific enforceable language.

**Subsection (c)(1)(A)8.** is added to specify that the documentation regarding the demonstration required of universal waste handlers in subsection (d) of section 66273.81 must be kept as records by the universal waste handler. This provision is necessary to allow DTSC enforcement staff to hold universal waste handlers responsible for any improper handling or dispositions of CRTs with specific enforceable language.



**Amend section 66273.75, Treatment (Processing) Standards:**

This section describes the requirements that apply to universal waste handlers that are authorized to treat electronic devices, CRTs, and residual printed circuit boards under section 66273.73. This section is amended to remove the previous requirements for treating CRTs and establish new treatment requirements for CRT glass that are consolidated within the new subsection (f) Management of CRT glass.

**Subsection (a)(7)** is amended to include only requirements for electronic devices that are not CRT devices and residual printed circuit boards. This is necessary because the requirements for the treatment of CRTs in these regulations are included in the management standards for CRT glass. Additionally, the requirement for treatment residuals meeting the definition of scrap metal in section 66273.9 to be recycled is removed from this subsection and placed in subsection (c)(2) of this section, which pertains to residuals other than CRT glass. The requirement that all treatment residuals meeting the definition of CRT glass in section 66273.9 must be recycled is deleted due to the new option to dispose CRT glass added in these regulations. This deletion is necessary to clarify to the universal waste handler that the option to dispose is available under chapter 23 to accommodate the decreasing availability of recycling options for CRTs, in addition to mitigating illegal disposal.

**Subsection (a)(8)** is amended to remove the requirements of recycling and reclamation at a CRT glass manufacturer or a primary or secondary lead smelter as the only ways to achieve CRT treatment authorization. This provision is necessary to clarify to the universal waste handler that the option to dispose is available under chapter 23 to accommodate the decreasing availability of recycling options for CRTs, in addition to mitigating illegal disposal. This subsection further clarifies that the disposal of CRT glass and the management of CRT glass under section 25143.2.5 of the Health and Safety Code are allowable dispositions for a universal waste handler operating under CRT treatment authorization in this chapter. This distinction is necessary for universal waste handlers to understand that upon meeting the specified requirements in section 25143.2.5 of the Health and Safety Code, the material is excluded from DTSC's hazardous waste regulations.

**Subsection (a)(9)** is added to specify two management standards that must be met for disposal of CRT panel glass in a CRT panel glass approved landfill pursuant to this section and article 8 of this chapter. This provision is necessary to ensure that RCRA hazardous waste is not disposed in a nonhazardous waste landfill.

**Subsection (a)(9)(A)** clarifies that CRT panel glass must be separated from funnel glass prior to disposal pursuant to article 8 of this chapter. This clarification is necessary to ensure that the leaded portions of the CRT funnel glass are managed as hazardous waste and are not mixed with the CRT panel glass that can be disposed of at a CRT



panel glass approved landfill. **Subsection (a)(9)(B)** clarifies that phosphor powders must be removed prior to disposal pursuant to article 8 of this chapter. This provision is necessary because the removal of phosphor powders mitigates negative impacts to human health and the environment if the CRT panel glass is disposed of at a CRT panel glass approved landfill. The subsequent subsection is renumbered as **subsection (a)(10)** to accommodate the insertion of new subsection (a)(9).

**Subsection (c)** is amended to clarify that this subsection applies to all residuals generated from treatment of CRTs except for CRT glass. This was necessary due to new subsection (f) which contains the management standards and requirements pertaining to CRT glass.

**Subsection (c)(1)** is amended to clarify that the (treatment) activities that generate residuals are authorized under section 66273.73, and not 66273.75, which delineates the standards to be followed upon authorization to treat electronic devices, CRTs, and residual printed circuit boards. This amendment is necessary to allow DTSC enforcement staff to hold subsection universal waste handlers who conduct treatment under 66273.73 responsible for any improper handling or dispositions of CRTs with specific enforceable language. **Subsection (c)(1)(C)** clarifies that the handler is a universal waste handler. This amendment is necessary to clarify what is meant by “handler” and avoid confusion from inconsistent terminology.

Existing **Subsection (c)(2)** is repealed to remove any reference to CRT glass, since subsection (c) no longer applies to the management of the residual of CRT glass. It is necessary to remove the requirement that CRT glass may only go to a CRT glass manufacturer or to a primary or secondary lead smelter, due to the new option to dispose CRT glass in these regulations. It is no longer necessary that a universal waste handler who has generated the treatment residual of CRT glass ensure the CRT glass is recycled in one of the previously specified dispositions.

New **Subsection (c)(2)** is added to contain the requirement to recycle treatment residuals meeting the definition of scrap metal in section 66273.9. It is necessary to specify that residuals are appropriately recycled to ensure residuals are being recycled in accordance with the scope of chapter 23. This requirement is moved from subsection (a)(7) to **subsection (c)(2)**, a more appropriate location for management of treatment residuals in a subsection that does not apply to CRT glass.

**Subsection (f)** is added to describe the management standards that apply to CRT glass generated from the treatment of CRTs authorized under section 66273.73. The management standards differ based on the ultimate disposition option chosen by the universal waste handler. This provision is necessary to ensure the universal waste handler who treats CRT glass understand what requirements they are subject to.

**Subsection (f)(1)** clarifies that a universal waste handler must ensure that CRT glass is either recycled or disposed as described in this section. The management standard is relocated from the repealed subsection of (c)(2) of this section in existing regulations. This provision is necessary to allow DTSC enforcement staff to hold universal waste handlers responsible for any improper handling or dispositions of CRTs with specific enforceable language. Additionally, the disposal option under chapter 23 is necessary to accommodate the decreasing availability of recycling options for CRTs, in addition to mitigating illegal disposal.

**Subsection (f)(2)** clarifies that CRT panel glass that is disposed in a CRT panel glass approved landfill must meet specific requirements, including the treatment standard in this section. This provision is necessary to allow DTSC to have knowledge of the universal waste handler who intends to dispose of CRT panel glass pursuant to article 8 of this chapter, in order to prepare for inspections. Additionally, this is necessary to ensure that RCRA hazardous waste is not disposed in a nonhazardous waste landfill.

**Subsection (f)(2)(A)** clarifies that a universal waste handler must ensure that CRT panel glass and CRT funnel glass remain separate upon the generation of each type of glass. This clarification is necessary to ensure that the leaded portions of the CRT funnel glass are managed as hazardous waste and are not mixed with the CRT panel glass that can be disposed of at a CRT panel glass approved landfill.

**Subsection (f)(2)(B)** clarifies that a universal waste handler has 30 days upon generating the CRT panel glass to determine if the CRT panel glass meets the waste criteria pursuant to section 66273.81 of article 8. This waste determination provision is necessary to ensure that the waste is appropriately handled upon hazardous waste determination within a timely manner.

**Subsection (f)(2)(C)** clarifies that a universal waste handler may manage the CRT panel glass according to section 66273.82 of article 8 management standards until the determination is made if the CRT panel glass meets the waste criteria. This provision is necessary to ensure that CRT panel glass is appropriately accumulated and handled.

**Subsection (f)(2)(D)** clarifies that a universal waste handler may continue to manage the CRT panel glass following article 8 management standards once the determination is made that the CRT panel glass meets the waste criteria. This provision is necessary to ensure that CRT panel glass is appropriately accumulated and handled.

**Subsection (f)(2)(E)** clarifies that a universal waste handler who generates CRT panel glass that does not meet the waste criteria in article 8 must manage the CRT panel glass as CRT glass and determine another disposition option for the glass pursuant to subsection (f)(3) of this section. This provision is necessary to ensure that CRT panel glass is appropriately accumulated and handled.

**Subsection (f)(3)** specifies the disposition options, other than disposal of CRT panel glass in a CRT panel glass approved landfill, available to a universal waste handler who generates CRT glass. This subsection specifies that the universal waste handler must either ship the CRT glass as universal waste for reclamation at a CRT glass manufacturer or primary or secondary lead smelter or ship the CRT glass as hazardous waste for disposal. This subsection is necessary to inform the universal waste handler of the options allowed. Depending on the disposition option chosen, the universal waste handler will be subject to the standards in subsection (f)(4) or (f)(5) of this section.

**Subsections (f)(4)** specifies what is required of a universal waste handler who chooses to dispose of CRT glass at a permitted hazardous waste disposal facility. This is necessary to give DTSC the ability to track the handlers who pursue this option and know in advance the disposal destination, thereby allowing DTSC to research the qualifications of the destination. Upon deciding to dispose the CRT glass, the universal waste handler is to be deemed the generator of hazardous waste CRT glass in **subsection (f)(4)(A)**. This is necessary to give DTSC the ability to track the handlers who pursue this option and ensure handler is meeting the requirements for hazardous waste generators. The universal waste handler who is the generator of hazardous waste CRTs shall manage the CRT glass as hazardous waste according to the specified chapters within this division as stated in **subsection (f)(4)(B)**. This is necessary to ensure that hazardous wastes are being appropriately handled and managed by generators to be protective of human health and the environment. Additionally, **subsection (f)(4)(C)** specifies that the universal waste handler shall notify DTSC of the intent to dispose in accordance with 66273.74(a)(2). This is necessary to give DTSC the ability to track the handlers who pursue this option and know in advance the disposal destination, thereby allowing DTSC to research the qualifications of the destination.

**Subsection (f)(5)** specifies what a universal waste handler is required to do to ensure that universal waste CRTs are sent to a CRT glass manufacturer or a primary or secondary lead smelter. This is necessary to give DTSC the ability to oversee the handlers who pursue this option to ensure their activities are protective of human health and the environment.

**Subsection (f)(5)(A)** specifies that a universal waste handler who ships the CRT glass to an intermediate facility prior to sending universal waste CRT glass to a CRT glass manufacturer or a primary or secondary lead smelter must make a contractual arrangement with any intermediate facility to ensure the CRT glass is subsequently sent to a CRT glass manufacturer or lead smelter. The contractual arrangement between the universal waste handler of CRT glass and the intermediate facility (e.g., out-of-state CRT glass processor) proposed in these final regulations is necessary to maintain the necessary control to ensure the CRT glass of the California universal waste handler is

recycled or disposed. The necessity of this provision of the proposed regulations is exemplified by the abandonment of large quantities of CRTs and CRT glass by a company in Arizona that had gone out of business. These sections in the emergency regulations gave DTSC enforcement the authority to direct California universal waste handlers to redirect the quantities of CRTs and CRT glass, which they had shipped to the Arizona company, to an acceptable disposition.

**Subsection (f)(5)(B)** specifies the additional information a universal waste handler must document and maintain onsite, pursuant to section 66273.74, in order to ship CRT glass to a CRT glass manufacturer or primary or secondary lead smelter as universal waste. These records are necessary to provide tracking mechanisms for the flow of CRT glass to the final dispositions of a CRT glass manufacturer and/or lead smelter; or to other facilities (if applicable). These required records include the quantities of CRTs, dates of departure, and dates of arrival to the final destinations. Subsections 1 through 6 under subsection (f)(5)(B) are detailed below.

**Subsection (f)(5)(B)1.** indicates that records of the name, address, and telephone number of the transporter of the CRTs must be maintained onsite. This information is necessary to provide some tracking mechanisms for the flow of CRTs to the final dispositions.

**Subsection (f)(5)(B)2.** indicates that records of the name and address of the CRT glass manufacturer and/or primary or secondary lead smelter must be maintained onsite. This information is necessary to provide some tracking mechanisms for the flow of CRTs to the final dispositions.

**Subsection (f)(5)(B)3.** indicates that records of the name, address, and telephone number of any facility the CRT glass is shipped to, that is not the final disposition and is not a universal waste handler authorized to treat CRT glass pursuant to section 66273.73, must be maintained onsite. This information is necessary to provide some tracking mechanisms for the flow of CRTs to the final dispositions.

**Subsection (f)(5)(B)4.** indicates that records of contractual arrangements must be maintained onsite if the handler does not ship the CRT glass directly to a final disposition, or to a universal waste handler authorized to treat CRT glass pursuant to section 66273.73. This information is necessary to provide some tracking mechanisms for the flow of CRTs to the final dispositions.

**Subsection (f)(5)(B)5.** indicates that records of the quantities of CRT glass and departure date of each shipment of CRT glass made pursuant to subsection (f)(5)(A), must be maintained onsite. This information is necessary to provide some tracking mechanisms for the flow of CRTs to the final dispositions.

**Subsection (f)(5)(B)6.** indicates that records of confirmation receipts of CRT glass shipments received by the CRT glass manufacturer or lead smelter must be maintained onsite and must have dates no later than 90 days after the departure date in subsection **(f)(5)(B)5**. This information is necessary to provide some tracking mechanisms for the flow of CRTs to the final dispositions.

**Add Article 8, Requirements for the Disposal of CRT Panel Glass**

This article specifies the management standards that apply to a universal waste handler authorized to treat CRTs to generate CRT panel glass pursuant to sections 66273.73(b), 66273.73(c), 66273.75(a)(9), and 66273.75(f)(2) for the disposal of CRT panel glass in approved landfills. The article specifies the waste criteria and methods of analysis and sampling that must be used to determine that the CRT panel glass meets the criteria. Article 8 also specifies tracking requirements that apply to a universal waste handler and transportation requirements for a person who transports CRT panel glass to a CRT panel glass approved landfill. The above requirements provide safeguards by limiting those who may use this new disposition option for CRT panel glass and mandating prescriptive analysis methods to ensure reliable testing results prior to disposal of CRT panel glass into landfills that operate under protective waste discharge requirements of the Water Code.

**Add section 66273.80, Applicability:**

**Subsection 66273.80(a)** specifies what type of CRT panel glass may be subject to article 8 and the universal waste handlers to whom the article may apply. This specificity is necessary for universal waste handlers to understand that only CRT panel glass as defined in this chapter, and generated and managed pursuant to section 66273.75, is subject to this article.

**Add section 66273.81, Criteria for Determining CRT Panel Glass Eligible for**

**Disposal:** This section specifies the criteria that CRT panel glass must meet prior to disposal in CRT panel glass approved landfills and specifies the methods by which the criteria are determined. Additionally, this section instructs the universal waste handler when to repeat the procedures to determine the eligibility of CRT panel glass for disposal and describes the content of records to be kept by the universal waste handler. This provision is necessary for universal waste handlers to understand what criteria the CRT panel glass must meet in order to be disposed of at a CRT panel glass approved landfill. This provision is also necessary to give DTSC the ability to oversee the handlers who pursue this disposal option to ensure their activities are protective of human health and the environment.

**Subsection 66273.81(a)** indicates the criteria following in subsection 66273.81(a)(1) through subsection 66273.81(a)(5) that CRT panel glass must meet in order to be eligible for disposal in a CRT panel glass approved landfill. This provision is necessary



for universal waste handlers to understand what criteria the CRT panel glass must meet in order to be disposed of at a CRT panel glass approved landfill. This provision is also necessary to give DTSC the ability to oversee the handlers who pursue this disposal option to ensure their activities are protective of human health and the environment.

**Subsection 66273.81(a)(1)** specifies that the CRT panel glass must not be a RCRA hazardous waste based upon the toxicity characteristic (i.e., a federal waste exceeding the TCLP). This provision is necessary to ensure that RCRA hazardous waste is not disposed in a nonhazardous waste landfill.

**Subsection 66273.81(a)(2)** specifies that the CRT panel glass shall not exhibit the toxicity characteristic of a hazardous waste by exceeding the STLC by using the WET method. This provision is necessary to provide safeguards by limiting those who may use this new disposition option for CRT panel glass. Additionally, mandating prescriptive analysis methods is necessary to ensure reliable testing results prior to disposal of CRT panel glass into landfills that operate under protective waste discharge requirements of the Water Code.

**Subsection 66273.81(a)(3)** further specifies that the CRT panel glass may only exhibit a characteristic of toxicity, and is hazardous waste solely because it exceeds the TTLC for any hazardous constituent. This provision is necessary to provide safeguards by limiting those who may use this new disposition option for CRT panel glass. Additionally, mandating prescriptive analysis methods is necessary to ensure reliable testing results prior to disposal of CRT panel glass into landfills that operate under protective waste discharge requirements of the Water Code.

**Subsection 66273.81(a)(4)** specifies an upper limit on the TTLC concentration of lead (i.e., 30,000 mg/kg or 3%) that CRT panel glass which is eligible for disposal to CRT panel glass approved landfills may exhibit. In brief, this requirement is a check on the quality of separation of the panel glass from the funnel glass. This provision is necessary to provide safeguards by limiting those who may use this new disposition option for CRT panel glass. Additionally, mandating prescriptive analysis methods is necessary to ensure reliable testing results prior to disposal of CRT panel glass into landfills that operate under protective waste discharge requirements of the Water Code.

**Subsection 66273.81(a)(5)** specifies that CRT panel glass must meet the land disposal restrictions treatment standards specified in article 4 of chapter 18 of this division to qualify for disposal in CRT panel glass approved landfills. This provision is necessary to provide safeguards by limiting those who may use this new disposition option for CRT panel glass. Additionally, mandating prescriptive analysis methods is necessary to ensure reliable testing results prior to disposal of CRT panel glass into landfills that operate under protective waste discharge requirements of the Water Code.



**Subsection 66273.81(b)** specifies the procedures by which the criteria in subsection 66273.81(a) must be met. This provision is necessary to provide safeguards by limiting those who may use this new disposition option for CRT panel glass. Additionally, mandating prescriptive analysis methods is necessary to ensure reliable testing results prior to disposal of CRT panel glass into landfills that operate under protective waste discharge requirements of the Water Code.

**Subsection 66273.81(b)(1)** specifies the sampling methods that must be used to ensure accurate testing of the CRT panel glass and where to access the referenced sampling methods. This provision is necessary to provide safeguards by limiting those who may use this new disposition option for CRT panel glass. Additionally, mandating prescriptive analysis methods is necessary to ensure reliable testing results prior to disposal of CRT panel glass into landfills that operate under protective waste discharge requirements of the Water Code.

**Subsection 66273.81(b)(2)** specifies the required testing methods or analyses to be used on the CRT panel glass. This provision is necessary to provide safeguards by limiting those who may use this new disposition option for CRT panel glass.

Additionally, mandating prescriptive analysis methods is necessary to ensure reliable testing results prior to disposal of CRT panel glass into landfills that operate under protective waste discharge requirements of the Water Code. **Subsection**

**66273.81(b)(2)(A)** specifies Method 1311 as the required analysis method to determine if the CRT panel glass is a RCRA hazardous waste based upon TCLP values; and specifies where to find descriptions of this U.S. EPA leachability testing method. This provision is necessary to provide safeguards by limiting those who may use this new disposition option for CRT panel glass. Additionally, mandating prescriptive analysis methods is necessary to ensure reliable testing results prior to disposal of CRT panel glass into landfills that operate under protective waste discharge requirements of the Water Code. **Subsection 66273.81(b)(2)(B)** specifies Method 3052 as the required testing method to determine if the CRT panel glass is a hazardous waste based upon TTLC values; and specifies where to find descriptions of this California total concentration testing method. This provision is necessary to provide safeguards by limiting those who may use this new disposition option for CRT panel glass.

Additionally, mandating prescriptive analysis methods is necessary to ensure reliable testing results prior to disposal of CRT panel glass into landfills that operate under protective waste discharge requirements of the Water Code. **Subsection**

**66273.81(b)(2)(C)** specifies the WET as the required analysis method; or an alternate method as stipulated in California Code of Regulations, title 22, division 4.5, chapter 11, article 5, appendix II, subsection (b), pursuant to section 66260.21 to determine if the CRT panel glass is a hazardous waste, based upon STLC values; and specifies where to find descriptions of this California leachability testing method. This provision is

necessary to provide safeguards by limiting those who may use this new disposition option for CRT panel glass. Additionally, mandating prescriptive analysis methods is necessary to ensure reliable testing results prior to disposal of CRT panel glass into landfills that operate under protective waste discharge requirements of the Water Code.

**Subsection 66273.81(c)** clarifies when to repeat the testing procedures for CRT panel glass in order to ensure the criteria in subsection 66273.81(a) are met. Specifically, the analysis shall be done when the universal waste handler is notified or has reason to believe that there is either a change in concentration of hazardous constituents in the CRTs or a change in the treatment process generating the CRT panel glass. This would be a change great enough to invalidate the certification required by subsection (g) of section 66273.82. This provision is necessary to provide safeguards by limiting those who may use this new disposition option for CRT panel glass. Additionally, mandating prescriptive analysis methods is necessary to ensure reliable testing results prior to disposal of CRT panel glass into landfills that operate under protective waste discharge requirements of the Water Code.

**Subsection 66273.81(d)** specifies the documents required to be kept by the universal waste handler who pursues the disposal of CRT panel glass in a CRT panel glass approved landfill. This documentation includes the description of the treatment and testing methods; records of the quantification of all hazardous constituents from the analyses; and the planned frequency of reviewing or repeating the testing procedures. This provision is necessary to allow DTSC enforcement staff to hold universal waste handlers responsible for any improper handling or dispositions of CRT panel glass with specific enforceable language.

**Subsection 66273.81(d)(1)** specifies that a description of the treatment pursuant to meeting the criteria of subsection 66273.81(a) must be maintained. This provision is necessary to allow DTSC enforcement staff to hold universal waste handlers responsible for any improper handling or dispositions of CRT panel glass with specific enforceable language.

**Subsection 66273.81(d)(2)** specifies that the documentation of the analysis(es) and the sampling method(s) used pursuant to subsection 66273.81(b) must be maintained. This provision is necessary to allow DTSC enforcement staff to hold universal waste handlers responsible for any improper handling or dispositions of CRT panel glass with specific enforceable language.

**Subsection 66273.81(d)(3)** specifies the frequency at which the procedures pursuant to subsection 66273.81(b) will be reviewed or repeated, must be documented and maintained. This provision is necessary to allow DTSC enforcement staff to hold universal waste handlers responsible for any improper handling or dispositions of CRT panel glass with specific enforceable language.

**Subsection 66273.81(e)** clarifies what options the universal waste handler has if the CRT panel glass does not meet all of the criteria specified in subsection (a) of this section. The universal waste handler is instructed to manage the CRT panel glass according to subdivision (f)(3) of section 66273.75. The options include: shipping the CRT glass panel glass for reclamation at a CRT glass manufacturer or at a primary or secondary lead smelter; or disposal at a permitted hazardous waste disposal facility. This provision is necessary to allow DTSC enforcement staff to hold universal waste handlers responsible for any improper handling or dispositions of CRT panel glass with specific enforceable language.

**Add section 66273.82, Management of CRT Panel Glass Prior to Disposal:**

This section is added to specify the management requirements of CRT panel glass destined for disposal. This provision is necessary to allow DTSC enforcement staff to hold universal waste handlers responsible for any improper handling or dispositions of CRT panel glass with specific enforceable language. Additionally, this provision is necessary to provide safeguards by limiting those who may use this new disposition option for CRT panel glass.

**Section 66273.82(a)** specifies that CRT panel glass must meet requirements outlined in 66273.81 if the CRT panel glass is destined for disposal in CRT panel glass approved landfills. This provision is necessary to provide safeguards by limiting those who may use this new disposition option for CRT panel glass. Additionally, this provision is necessary to provide safeguards by limiting those who may use this new disposition option for CRT panel glass.

**Section 66273.82(b)** clarifies that CRT panel glass specified in section 66273.82(a) must be managed according to subsection (c)(1)(B) of section 66273.33.5 (i.e., manage CRT glass in a way that prevents releases of any CRT glass to the environment under reasonably foreseeable conditions). It is necessary to apply these containment and cleanup requirements for spills or releases of CRT glass to ensure that the universal waste handler is aware that the requirements apply to CRT panel glass and maintain the chapter 23 safety standards to protect human health and the environment.

**Section 66273.82(c)** instructs the universal waste handler to clearly label areas or containers used to contain the CRT panel glass as "Excluded Hazardous Waste – CRT Panel Glass." This is necessary to identify, through markings, the CRT panel glass and keep it separate from other CRT glass streams that are not authorized for disposal at CRT panel glass approved landfills.

**Section 66273.82(d)** specifies that the accumulation of excluded CRT panel glass may not exceed 180 days. This is necessary to avoid longer-term storage and to differentiate from the yearlong accumulation time afforded to universal waste accumulation.

**Section 66273.82(e)** ensures that all personnel who manage universal wastes at the universal waste handler's facility are thoroughly familiar with proper universal waste management and emergency response procedures relative to those persons' responsibilities. This is necessary to provide the "Excluded Hazardous Waste – CRT Panel Glass" with the same protective standards as those for universal waste CRT glass.

**Section 66273.82(f)** specifies that the universal waste handlers are required to respond as directed to all releases of "Excluded Hazardous Waste – CRT Panel Glass" to the environment. This is necessary to clarify that the CRT panel glass, although labeled as an excluded material, is subject to the universal waste response to releases. This is imperative to the protection of human health and the environment.

**Section 66273.82(g)** specifies that the universal waste handler shall submit a notification and certification to DTSC at least 60 days prior to the initial shipment of CRT panel glass to a CRT panel glass approved landfill. The information contained in the notification is necessary for DTSC to have knowledge of which recyclers plan to dispose CRT panel glass and which landfills plan to accept this waste stream. If necessary, DTSC would be able to research the qualifications of each landfill ahead of the actual shipment of the waste. Otherwise, the only indication to DTSC of CRT panel glass disposal activity would be annual report data that is due in February following the calendar year.

**Subsection 66273.82(g)(1)** specifies that the contents of the above notification will follow. This information is necessary for DTSC to have knowledge of which recyclers plan to dispose CRT panel glass and which landfills plan to accept this waste stream.

**Subsection 66273.82(g)(1)(A)** specifies the name(s), address(es), and telephone number(s) of the CRT panel glass approved landfill(s) receiving the CRT panel glass shipment(s). This information is necessary for DTSC to have knowledge of which recyclers plan to dispose CRT panel glass and which landfills plan to accept this waste stream.

**Subsection 66273.82(g)(1)(B)** specifies the description of the CRT panel glass and how it was generated. This provision is necessary to allow DTSC to have knowledge of the universal waste handler who intends to dispose of CRT panel glass pursuant to article 8 of this chapter, in order to prepare for inspections.

**Subsection 66273.82(g)(1)(C)** specifies the ID number for the universal waste handler's facility at which the CRT panel glass was generated. This provision is

necessary to allow DTSC to have knowledge of the universal waste handler who intends to dispose of CRT panel glass pursuant to article 8 of this chapter, in order to prepare for inspections.

**Subsection 66273.82(g)(2)** specifies the wording for a certification statement to be signed by an authorized representative of the universal waste handler's facility which holds the signer accountable for the proper treatment process and the meeting of criteria in section 66273.81. This is necessary for DTSC's ability to enforce the requirements of this section.

**Subsection 66273.82(g)(3)** specifies that the address to which the notification and certification must be sent is provided in subsection (f) of section 66273.74. This provision is necessary to allow DTSC to have knowledge of the universal waste handler who intends to dispose of CRT panel glass pursuant to article 8 of this chapter, in order to prepare for inspections.

**Section 66273.82(h)** clarifies that if the content of hazardous constituents or the treatment method of the CRTs changes significantly to the extent that the current/previous certification is no longer valid, or if the CRT panel glass is shipped to another CRT panel glass approved landfill, an updated notification and certification must be sent to DTSC. This provision is necessary for DTSC to become aware of any changes in the treatment and disposal of CRTs.

**Add section 66273.83, Tracking Shipments of CRT Panel Glass:**

This section is added to specify the universal waste handler's recordkeeping requirements regarding CRT panel glass meeting the criteria in section 66273.81 and transported to a CRT panel glass approved landfill. This is necessary to give DTSC the ability to track the handlers who pursue this option and know in advance the disposal destination, thereby allowing DTSC to research the qualifications of the destination.

**Subsection 66273.83(a)** clarifies that the universal waste handler must keep records for each shipment of CRT panel glass sent to a CRT panel glass approved landfill pursuant to this article. This information is necessary to provide some tracking mechanisms for the flow of CRTs to the final dispositions. The required contents of these records are specified in **subsections (a)(1) and (a)(2)** of this section, which include the quantity (by weight) and date of departure of each shipment. This information is necessary to provide some tracking mechanisms for the flow of CRTs between locations. Additionally, **subsection (a)(3)** of this section specifies that the notification and certification required by subsection (g) of section 66273.82 must be kept for each shipment. This information is necessary to provide some tracking mechanisms for the flow of CRTs between locations. **Subsection (a)(4)** specifies that a copy of the notification and certification document, signed by the CRT panel glass approved landfill owner upon receipt of the shipment of CRT panel glass, must also be kept as a record



by the universal waste handler. This information is necessary to provide some tracking mechanisms for the flow of CRTs between locations.

**Subsection 66273.83(b)** specifies the length of time for which shipment records in the above subsection must be kept by the universal waste handler (i.e., a minimum of three years from the date of departure of the shipment). This provision is necessary to allow DTSC enforcement staff to hold universal waste handlers responsible for any improper handling or dispositions of CRT panel glass with specific enforceable language.

**Subsection 66273.83(c)** clarifies that the universal waste handler must provide current copies of the notification and certification described in subsection (g) of section 66273.82. Two copies must be provided to the transporter for each shipment of the CRT panel glass transported offsite to a CRT panel glass approved landfill. This provision is necessary to allow DTSC enforcement staff to hold universal waste handlers responsible for any improper handling or dispositions of CRT panel glass with specific enforceable language.

**Add section 66273.84, Offsite Transportation:**

This section is added to specify the responsibilities of the person who transports CRT panel glass to a CRT panel glass approved landfill. This provision is necessary to provide some tracking mechanisms for the flow of CRTs between locations.

**Subsection (a)** specifies that the transporter must comply with the applicable requirements of subsections (b) and (c) of section 66273.51, sections 66273.52, 66273.53, 66273.54, subsection (b) of section 66273.55, and section 66273.56. The required actions of the transporter serve to complete the recordkeeping requirements of the universal waste handler pursuant to section 66273.83. These records are necessary to provide DTSC inspectors with the ability to verify the proper handling and disposition of the CRT panel glass.

**Subsection (a)(1)** specifies that the transporter have two copies, provided by the universal waste handler, of the notification and certification required in subsection (g) of section 66273.82. These paperwork records are necessary because they serve as a tracking system for the transport and receipt of the CRT panel glass at its final destination, the CRT panel glass approved landfill.

**Subsection (a)(2)** specifies the actions the transporter must take upon relinquishing the CRT panel glass to the CRT panel glass approved landfill. This provision is necessary to ensure that the person who transport CRT panel glass understands the requirements they must adhere to. Additionally, this provision is necessary to allow DTSC enforcement staff to hold universal waste handlers responsible for any improper handling or dispositions of CRT panel glass with specific enforceable language.



**Subsection (a)(2)(A)** specifies that the transporter must obtain the dated signature of the owner or operator of the CRT panel glass approved landfill on one copy of the notification and certification. This provision is necessary to allow DTSC enforcement staff to hold persons who transport CRT panel glass responsible for any improper handling or dispositions of CRT panel glass with specific enforceable language.

**Subsection (a)(2)(B)** specifies that the transporter must include on the signed copy a statement that the CRT panel glass was received by the CRT panel glass approved landfill owner or operator. This provision is necessary to allow DTSC enforcement staff to hold persons who transport CRT panel glass and receiving facilities responsible for any improper handling or dispositions of CRT panel glass with specific enforceable language.

**Subsection (a)(2)(C)** specifies that the transporter must keep the signed copy of the notification and certification. This provision is necessary to allow DTSC enforcement staff to hold persons who transport CRT panel glass responsible for any improper handling or dispositions of CRT panel glass with specific enforceable language.

**Subsection (a)(2)(D)** specifies that the transporter must provide the unsigned copy of the notification and certification to the CRT panel glass approved landfill owner or operator for his records. This provision is necessary to allow DTSC enforcement staff to hold persons who transport CRT panel glass and receiving facilities responsible for any improper handling or dispositions of CRT panel glass with specific enforceable language.

**Subsection (a)(3)** clarifies that the final responsibility of the transporter is to send a copy of the signed copy of the notification and certification to the universal waste handler who initiated the shipment of the CRT panel glass. This serves to complete the recordkeeping loop for the one particular shipment of CRT glass to the CRT panel glass approved landfill. This provision is necessary to allow DTSC enforcement staff to hold persons who transport CRT panel glass and CRT panel glass generators responsible for any improper handling or dispositions of CRT panel glass with specific enforceable language.

## **ECONOMIC IMPACT ANALYSIS**

In accordance with Government Code section 11346.3(b), DTSC completed an economic impact assessment and determined that the proposed regulation will not have a significant adverse economic impact on business as detailed in the ECONOMIC AND FISCAL IMPACT STATEMENT (STD Form 399). DTSC has made the following assessments regarding the proposed regulations.

### **Creation of New Businesses or Elimination of Existing Businesses within California**

The disposal options and the documentation requirements in the proposed regulations will not create or eliminate businesses within the State of California. There is a potential increase in the quantity of waste received by existing permitted hazardous waste disposal facilities and nonhazardous waste landfills in California due to the disposal provisions of the proposed regulations. However, DTSC does not anticipate that new disposal facilities will be created in response to the potential increase of waste, as it will not create a significant increase in the total waste intake of the landfills that may accept the waste. In 2016, CRT panel glass represented less than 1% of the total volume received by nonhazardous waste landfills, according to data.<sup>35</sup> Likewise, the quantity of waste CRTs and CRT glass was a negligible percentage of the total volume received by permitted hazardous waste disposal facilities in California. DTSC also does not anticipate that new CRT recyclers will be created, as the amount of CRT devices entering the waste stream is not increasing, but rather gradually decreasing.<sup>36</sup>

### **Creation or Elimination of Jobs within California**

The disposal options and the documentation requirements in the proposed regulations will not create or eliminate jobs within the State of California. There is a potential increase in the quantity of waste received by permitted hazardous waste disposal facilities and nonhazardous waste landfills in California due to the disposal provisions of the proposed regulations. As discussed above, this potential increase is not significant in terms of the total waste intake of the landfills that may accept the CRTs, CRT glass, and CRT panel glass. Therefore, DTSC is not able to quantify the increased workload or the need for additional positions at the disposal facilities that may result from this proposed regulation.

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<sup>35</sup> Solid Waste Landfilling Data as reported by the landfills for IWM Fee Assessment Sorted by Solid Waste Information System (SWIS) ID and shipment data from the Covered Electronic Waste Information System (CEWIS) database maintained by CalRecycle.

<sup>36</sup> As described by CalRecycle program summaries (e.g., Update on California's Covered Electronic Waste Recycling Program Implementation of the Electronic Waste Recycling Act of 2003 (SB 20, Sher) February 2017) and CalRecycle payment claim summaries.

### **Expansion of Current California Businesses**

DTSC does not anticipate any appreciable expansion of businesses currently doing business in California due to the proposed regulations. The current California businesses impacted by these proposed regulations are the CRT recyclers and the landfills which accept the treatment residuals of CRTs, CRT glass, and CRT panel glass. The businesses potentially most impacted are the landfills which have been provided the opportunity to accept this CRT waste stream by emergency regulations that have been in place since 2012. DTSC anticipates that none of the landfill businesses currently accepting CRTs and CRT treatment residuals will not expand due to the acceptance (increased intake) of this waste based upon disposal data. In 2016, CRT panel glass represented less than 1 percent of the total volume received by nonhazardous waste landfills according to data.<sup>37</sup> Likewise, the quantity of waste CRTs and CRT glass was a negligible percentage of the total volume received by permitted hazardous waste disposal facilities located in California. Additionally, the quantity of CRT devices entering the waste stream is not increasing, but rather gradually decreasing.

### **Anticipated Benefits**

This regulation allows CRT recyclers in California to collect, treat, and process CRTs and CRT glass destined for safe disposal in specified landfills under universal waste management standards (i.e., alternative management standards). Although the CRT recyclers must label, manifest, transport the CRTs, and pay hazardous waste disposal fees for all CRT glass except for CRT panel glass that meets specific requirements outlined in the proposed regulations, they are spared the expense of obtaining a hazardous waste facility permit, financial assurance for facility closure, and annual facility fees. These alternative management standards (in lieu of full hazardous waste management) for the handling and processing of CRTs and CRT glass will encourage proper and safe disposal as the recycling market for CRT glass manufacturing disappears and a safe and viable recycling outlet has not yet developed. These regulations provide a safe and effective disposition option for this large volume hazardous waste. Additionally, this regulation allows universal waste handlers to dispose of CRT panel glass (i.e., the non-leaded portion of a CRT) that is properly separated from the leaded portions of a CRT and meets specified criteria, including testing requirements, in specified nonhazardous waste landfills in California. This is another cost-avoidance benefit to the universal waste handler who chooses to dispose of CRT panel glass as a less costly, nonhazardous waste. The benefit of avoiding the

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<sup>37</sup> Solid Waste Landfilling Data As reported by the landfills for IWM Fee Assessment Sorted by Solid Waste Information System (SWIS) ID and shipment data from the Covered Electronic Waste Information System (CEWIS) database maintained by CalRecycle.

review process and the expense of obtaining a hazardous waste facility permit will serve to deter improper management and prevent the stockpiling and abandonment of CRTs and CRT glass in California, other states, and abroad.

## **EVIDENCE SUPPORTING A DETERMINATION THAT THE PROPOSAL WILL HAVE NO ADVERSE ECONOMIC IMPACT ON BUSINESS**

As required by Government Code section 11346.3(a), DTSC assessed the potential for adverse economic impact on California Businesses by completing an economic impact assessment as required by Government Code section 11346.3(b). DTSC's initial determination is that the proposed regulations will not have a significant adverse economic impact on business, including the ability of California business to compete with businesses in other states because this proposed regulation allows CRT recyclers the option to dispose of the treatment residuals of CRT devices and CRTs without the expense of obtaining a hazardous waste facility permit, financial assurance for facility closure, and annual facility fees. This conclusion is also supported by the preceding four sections under the Economic Impact Analysis, above.

## **REPORTS AND STUDIES RELIED ON**

DTSC has relied upon the following documents in proposing the regulatory action:

1. Townsend, T., Musson, S., Jang, Y.-C., and Chung, I.-H. Characterization of Lead Leachability from Cathode Ray Tubes using the Toxicity Characteristic Leaching Procedure. *Environ. Sci. Technol.*, 2000, 34 (20), 4376–4381.
2. Report: "Exporting Harm – The High-Tech Trashing of Asia," the Basel Action Network and the Silicon Valley Toxics Coalition, February 2002.
3. Gregory, J., Nadeau, M., and Kirchain, R. Evaluating the Economic Viability of a Material Recovery System: The Case of Cathode Ray Tube Glass. *Environ. Sci. Technol.*, 2009, 43, 9245–9251.
4. DTSC data compiled from 2009 and 2010 Annual Reports for e-waste Handling and Recycling Activity from the DTSC Universal Waste Electronic Devices (UWED) Database.
5. CalRecycle data compiled from November 2015 through November 2016 payment claims from the Covered Electronic Waste Information System (CEWIS) Database.
6. Restrepo, E., Widmer, R., and Schluep, M. Leaded Glass from Cathode Ray Tubes (CRTs) – A Critical Review of Recycling and Disposal Options, 2016.

7. Mahesh, P., Jena, A., Sharma, V. Looking Through Glass CRT GLASS RECYCLING IN INDIA Study by Toxics Link Research Team, 2014.
8. Internal DTSC Issue Statement: "CA CRT Glass Issue – The Facts" 2012.
9. External Scientific Peer Review of the Proposed Maximum Lead Concentration as a Criterion for CRT Glass Disposal April 9, 2015.
10. Solid Waste Landfilling Data for for IWM Fee Assessment Sorted by Solid Waste Information System (SWIS).
11. Reports generated by the Covered Electronic Waste Information System (CEWIS) database maintained by CalRecycle.
12. CalRecycle program summary: "Update on California's Covered Electronic Waste Recycling Program Implementation of the Electronic Waste Recycling Act of 2003 (SB 20, Sher) February 2017".

### **MANDATED USE OF SPECIFIC TECHNOLOGIES OR EQUIPMENT**

The regulations do not mandate the use of specific technologies or equipment. The regulations do not mandate the method by which to separate CRT panel glass from CRT funnel glass (as required for disposal of CRT panel glass in a nonhazardous waste landfill) or the form in which contractual information and confirmation of receipt at final disposition is documented if CRTs and/or CRT glass are shipped to an intermediate facility. However, in order to ensure accurate testing of CRT panel glass as required in article 8, chapter 23, title 22, California Code of Regulations, of the regulations, specific sampling methods and analysis methods are prescribed. This is necessary to ensure that the CRT panel glass is accurately characterized and appropriately/safely disposed according to Health and Safety Code section 25141.5.

### **REASONABLE ALTERNATIVES CONSIDERED**

DTSC has determined that no reasonable alternative considered by DTSC or that has otherwise been identified and brought to the attention of DTSC would be more effective in carrying out the purpose for which the action is proposed, would be as effective and less burdensome to affected private persons than the proposed action, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provision of law. The basis and supporting information for this determination are discussed below.

1. **Recommended Alternative:** Expand the existing options for the disposition of CRTs and CRT glass currently regulated under DTSC's Universal Waste Regulations. By removing the requirement that a universal waste handler may treat CRTs only if the glass is sent for recycling to either a CRT glass manufacturer or a primary or secondary lead smelter, the handler can manage the CRTs and CRT glass under universal waste

rules and may decide to dispose of the CRTs or portions of the CRTs by two different options. One option is the disposal of CRTs and CRT glass at a permitted hazardous waste facility, managed as fully regulated hazardous waste from the point the decision to dispose is made. The other option is disposal of certain types of CRT glass (that do not contain lead and are properly separated from lead-containing CRT glass) in certain class II or III landfills, if specific requirements are met, including waste criteria requirements prior to disposal.

**2. Alternative:** Amend Universal Waste regulations to allow recycling by means other than CRT glass manufacturing and lead smelting. This alternative allows the universal waste handler to determine whether the CRT glass can be recycled as an ERM and includes an entire article outlining an optional ERM concurrence process offered by DTSC to determine whether the CRT glass is excluded from regulation as hazardous waste for specific alternative recycling methods. This alternative was implemented as part of the emergency regulations in 2012 and the two subsequent re-adoptions of the emergency regulations in 2014 and 2016 to promoting legitimate recycling efforts by stakeholders. However, due to the non-emergence of any clear, viable alternative recycling method during the entire period in which the emergency regulations were in effect, DTSC does not seek to finalize this alternative.

**3. Alternative:** Amend Universal Waste regulations by DTSC identifying and listing only specific recycling options in addition to CRT glass manufacturing and primary and secondary lead smelting. This alternative was considered but not included in the emergency regulations mentioned above as no known viable alternative recycling option had been identified.

**4. No action:** Existing regulations require that CRT glass gets recycled by a CRT glass manufacturer or lead smelter, as those were determined to be the safest recycling options. However, these markets are not sustainable, and lead smelting is not a viable option for panel glass, which contains little to no lead. Without the addition of alternative disposition options, the effectiveness of CalRecycle's recycling (payment) program is certain to diminish. While disposal to hazardous waste landfills may not be as preferable as recycling, it provides a legal and safe disposition for CRTs and CRT glass that encourages the continued success of the EWRA and discourages the stockpiling or abandonment of CRT materials.

## DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

U.S. EPA does not regulate CRTs or CRT glass as universal wastes. Instead, under U.S. EPA's "CRT Rule" and "2014 CRT Export Rule" (40 C.F.R. §§ 260-261, 71 Fed. Reg. 42928 (Jul. 28, 2006), amended Jun. 26, 2014, 79 Fed. Reg. 36220, amended Nov. 28, 2016, 81 Fed. Reg. 85696), CRTs and CRT glass destined for recycling, and



CRTs exported for reuse, are excluded from U.S. EPA hazardous waste regulation if certain conditions are met. (See 40 C.F.R. subpart E (commencing with sec. 261.39)). If the CRTs are not managed as specified by these conditions, they are not excluded. The CRTs would then be considered hazardous waste (if they exhibit a hazardous waste characteristic) for purposes of U.S. EPA regulation from the time they were "generated" (i.e., from the time the decision was made to dispose of them or to release the vacuum for recycling). Under the CRT Rule, processed CRT glass (glass removed from CRTs) that is sent to a CRT glass manufacturer or a lead smelter is not a solid waste unless it is speculatively accumulated. If it is sent for other types of recycling (other than being used in a manner constituting disposal), it may also be excluded from the definition of a solid waste, and therefore would not be regulated by U.S. EPA as a hazardous waste if it meets the criteria of 40 Code of Federal Regulations part 261.2(e)(1)(ii). (See 71 Fed. Reg. 42928 (Jul. 28, 2006)).

The CRT Rule does not prohibit a State authorized to implement its hazardous waste program in lieu of the U.S. EPA program from regulating CRTs and CRT glass as fully regulated hazardous waste or as universal waste, or from imposing more stringent requirements on persons generating or managing universal waste CRTs or CRT glass than those imposed by the CRT Rule or other U. S. EPA regulations (See 71 Fed. Reg. 42928 (Jul. 28, 2006)).